APPENDIX B-6

Subgrade Surface Acceptance

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake Landfill
Project no. 0826-6002
Location Raleigh NC.

Area to be Accepted East side ap slope from Panel 1 TO Panel 10

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	[signature]	QAQC	8-13-08
	signature	title	date
THIRD PARTY QA/QC:	[signature]	RPR	8/13/08
	signature	title	date

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake Landfill
Project no. 0826-6008
Location Raleigh N.C.

Area to be Accepted East side of slope From P-10 To P-25

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:	[signature]	QAQC	8-14-08
THIRD PARTY QA/QC:	[signature]	RPR	8/14/2008

File: HALLATON subgrade approval v1-3.doc

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake Landfill
Project no. 0826-6008
Location Raleigh NC.

Area to be Accepted East slope and North East From panel 25 To panel 57

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:		QAQC	8-16-08
THIRD PARTY QA/QC:		RPR	8/16/2008

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake Landfill
Project no. 0826-6008
Location

Area to be Accepted North side of slope from P-57 to P-77.

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:	[signature]	QA/QC.	8-19-08
THIRD PARTY QA/QC:	[signature]	RPR	8/19/2008

File: HALLATON subgrade approval v1-3.doc

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake Landfill
Project no. 0826-6008
Location Raleigh NC.

Area to be Accepted North side of Slope From P-77 To P-108

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	[signature]	QAQC	8-22-08
	signature	title	date
THIRD PARTY QA/QC:	[signature]	RPR	8-22-08
	signature	title	date

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name ~~0826-6008~~ North Wake
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted North Slope. From P-108. To. P-120

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:	[signature]	QAQC.	9-04-08
THIRD PARTY QA/QC:	[signature]	RPR	9/4/2008

File: HALLATON subgrade approval v1-3.doc

HALLATON, INC.

100 E. PENNSYLVANIA AVE., TOWSON, MD 21286
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North wake Landfill
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted North west From panel 120 To panel 153

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:	[signature]	QAQC	10-2-08
THIRD PARTY QA/QC:	[signature]	RPR	10-2-08

File: HALLATON subgrade approval v1-3

HALLATON, INC.

100 E. PENNSYLVANIA AVE., TOWSON, MD 21286
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake Landfill
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted west side from panel 153 To panel 181

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:	[signature]	QAQC	10-4-08
THIRD PARTY QA/QC:	[signature]	RPR	10-4-08

HALLATON, INC.

100 E. PENNSYLVANIA AVE., TOWSON, MD 21286
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake LF
Project no. 0826-6008
Location Raleigh NC.

Area to be Accepted west side from p-181 to p-207

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:		QAQC.	10-7-08
THIRD PARTY QA/QC:		RPR	10-7/2008

HALLATON, INC.

100 E. PENNSYLVANIA AVE., TOWSON, MD 21286
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North wake LF
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted South west slope. from. panel 208.70 Panel 235.

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:		PHPC.	10-13-08
THIRD PARTY QA/QC:		RPR	10-15-08

File: HALLATON subgrade approval v1-3

HALLATON, INC.

100 E. PENNSYLVANIA AVE., TOWSON, MD 21286
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake LF
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted South East slope from Panel 256 To panel 290

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	signature	QAQC title	11-6-08 date
THIRD PARTY QA/QC:	signature	RPR title	11-6-08 date

File: HALLATON subgrade approval v1-3

HALLATON, INC.

100 E. PENNSYLVANIA AVE., TOWSON, MD 21286
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake LF
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted South slope. From panel 291. To panel 321

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	[signature]	QAQC	11-7-08
	signature	title	date
THIRD PARTY QA/QC:	[signature]	RPR	11-7-08
	signature	title	date

File: HALLATON subgrade approval v1-3

HALLATON, INC.

100 E. PENNSYLVANIA AVE., TOWSON, MD 21286
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North wake LF
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted South Slope From pond 322 To panel 348

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	signature	title	date
INSTALLER:	[signature]	QAQC	11-19-08
THIRD PARTY QA/QC:	[signature]	RPR	11-19-08

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted P-349 TO P-364

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	Ignacio Fernández signature	QC title	1-30-09 date
THIRD PARTY QA/QC:	 signature	RPR title	1/30/09 date

File: HALLATON subgrade approval v1-3

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted P-365 TO P-375

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

	Ignacio Fernandez	QC	1-31-09
INSTALLER:	signature	title	date
THIRD PARTY QA/QC:	[signature]	RPR	1-31-09
	signature	title	date

File: HALLATON subgrade approval v1-3

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake
Project no. 0826-6005
Location Raleigh NC

Area to be Accepted P-376 TO P-380

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	Ignacio Fernandez signature	QC title	2-03-09 date
THIRD PARTY QA/QC:	 signature	RPR title	2-03-09 date

File: HALLATON subgrade approval v1-3

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted P-381 TO P-398

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	Ignacio Fdz	GC	2-06-09
	signature	title	date
THIRD PARTY QA/QC:	[signature]	LPR	2-06-09
	signature	title	date

File: HALLATON subgrade approval v1-3

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake
Project no. 0826-6008
Location Raleigh NC

Area to be Accepted P-399 to P-414

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	Ignacio Fdz (signature)	QC (title)	2-02-09 (date)
THIRD PARTY QA/QC:	(signature)	RPR (title)	2-02-09 (date)

File: HALLATON subgrade approval v1-3

HALLATON, INC.

1206 SPARKS ROAD, SPARKS, MD 21152
410-583-7700 Fax 410-583-7720

Certificate of Subgrade Acceptance

Project Name North Wake
Project no. 0626-6008
Location Raleigh NC

Area to be Accepted P-415 - 421

I, the undersigned, duly authorized representative of the installer, do hereby accept the soil subgrade surface conditions. I do not accept any responsibility for the conditions or character of the subsurface soil, or any effect the subsurface soil might have on the liner system.

INSTALLER:	Ignacio Fdz	QC	2-20-09
	signature	title	date
THIRD PARTY QA/QC:	[signature]	RPR	2/20/09
	signature	title	date

File: HALLATON subgrade approval v1-3

APPENDIX B-7

LLDPE Liner Receiving Logs (CQC- 101)

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 8/10/2008 TIME: 10:23 am PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK SD04 – Bill No. 020758

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*: 12 weld rods

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 50 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Clear TEMP: 54 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

...IGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

...ME OF CARRIER	CARRIER'S NO.	DATE	B/L NO.
TRUCK	SD04	8/8/2008	020758

...EIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading.
...property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrie... ...erstood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to de... ...ther carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all o... ...property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on t... ...of, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
...per hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and con... ...hereby agreed to by the shipper and accepted for himself and his assigns.

...ROM: ...HIPPER ...ORIGIN)

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: CONSIGNEE
HALLATON, INC.
C/O THALLE CONSTRUCTION
9016 DEPONIE DR.
RALEIGH, NC 27615
KENNEDY GARBER-410-583-7700

STREET

DESTINATION

ZIP

...LIVERING ...RRIER TD7

ROUTE

VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE O...
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~	45010		
264		WELD ROD MFG BLACK LDPE 4MM	264			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	331445-08	13,782
L-LL-MSDS-040-BL	331446-08	13,782
L-LL-MSDS-040-BL	331447-08	13,782
L-LL-MSDS-040-BL	331448-08	13,782
L-LL-MSDS-040-BL	331549-08	13,782
L-LL-MSDS-040-BL	331550-08	13,782
L-LL-MSDS-040-BL	331551-08	13,782
L-LL-MSDS-040-BL	331552-08	13,782
L-LL-MSDS-040-BL	331553-08	13,782
L-LL-MSDS-040-BL	331554-08	13,782
L-LL-MSDS-040-BL	331555-08	13,782
L-LL-MSDS-040-BL	331557-08	13,782
L-LL-MSDS-040-BL	331558-08	13,782
L-LL-MSDS-040-BL	331559-08	13,782

Total Weight: ~~44,135 LB~~ 45274
Total Units: 14 Rolls
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

ok

...IT C.O.D. TO:

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE
☒ Prepaid
☒ Collect $

...e shipment moves between two ports by a carrier by ...r, the law requires that the bill of lading shall state ...her it is "carrier's or shipper's weight".

...pper's imprint in lieu of stamp; not a part of bill of lading ...oved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are C...

...is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transpo...

Shipper, Per

Agent, Per

...anent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL ...

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 8/10/2008 TIME: 11:23 am PROJECT NUMBER: 6172-55752

TRUCKERS ID: Bill No. 020756

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*: 12 weld rods

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 50 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Clear TEMP: 54 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

IE OF CARRIER | CARRIER'S NO. | DATE | 020756

VED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
operty described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier stood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to del er carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or roperty, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on th , if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
er hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and con reby agreed to by the shipper and accepted for himself and his assigns.

)M:
PPER
RIGIN)

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: HALEATON, INC.
CONSIGNEE C/O TRALLE CONSTRUCTION
9016 DEPONIE DR.
RALEIGH, NC 27615
STREET KENNEDY GARBER-410-583-7700
DESTINATION ZIP

VERING TNT
RIER
ROUTE
VEHICLE NUMBER

NO. ACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE OI
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~			
264		WELD ROD MFG BLACK LDPE 4MM	264			
			47,180			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	331101-08	13,782
L-LL-MSDS-040-BL	331102-08	13,782
L-LL-MSDS-040-BL	331103-08	13,782
L-LL-MSDS-040-BL	331104-08	13,782
L-LL-MSDS-040-BL	331105-08	13,782
L-LL-MSDS-040-BL	331106-08	13,782
L-LL-MSDS-040-BL	331107-08	13,782
L-LL-MSDS-040-BL	331208-08	13,782
L-LL-MSDS-040-BL	331209-08	13,782
L-LL-MSDS-040-BL	331210-08	13,782
L-LL-MSDS-040-BL	331211-08	13,782
L-LL-MSDS-040-BL	331212-08	13,782
L-LL-MSDS-040-BL	331213-08	13,782
L-LL-MSDS-040-BL	331214-08	13,782

47180
Total Weight: ~~44,135~~ LB
12
Total Units: 14 Rolls / Welding Rods
Order No.: 10562 Order Date: 06/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

SD10

T C.O.D. TO:
AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE
☐ Prepaid
☐ Collect $

shipment moves between two ports by a carrier by the law requires that the bill of lading shall state r it is "carrier's or shipper's weight".

per's imprint in lieu of stamp; not a part of bill of lading ed by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Co

s to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transport

Shipper, Per PD Agent, Per X

ment post office address of shipper
+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 8/10/2008 TIME: 1:50 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: BEST Way Frt Bill No. 020757

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*: 12 weld rods

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 50 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Clear TEMP: 54 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

AIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

E OF CARRIER BEST WAY FRT | CARRIER'S NO. | DATE 8/8/2008 | B/L NO. 020757

VED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
operty described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier b
tood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliv
r carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or ar
operty, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the
if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
r hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and condit
eby agreed to by the shipper and accepted for himself and his assigns.

M: PPER IGIN)

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: HALLATON, INC.
CONSIGNEE C/O THALLE CONSTRUCTION
9016 DEPONIE DR.
RALEIGH, NC 27615
STREET KENNEDY GARBER-410-583-7700
DESTINATION ZIP

ERING IER 1 ST | ROUTE | VEHICLE NUMBER

NO. CKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ONI
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~			
264		WELD ROD MFG BLACK LDPE 4MM	264			
			45780			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	331216-08	13,782
L-LL-MSDS-040-BL	331217-08	13,782
L-LL-MSDS-040-BL	331218-08	13,782
L-LL-MSDS-040-BL	331219-08	13,782
L-LL-MSDS-040-BL	331220-08	13,782
L-LL-MSDS-040-BL	331221-08	13,782
L-LL-MSDS-040-BL	331322-08	13,782
L-LL-MSDS-040-BL	331323-08	13,782
L-LL-MSDS-040-BL	331438-08	13,782
L-LL-MSDS-040-BL	331439-08	13,782
L-LL-MSDS-040-BL	331440-08	13,782
L-LL-MSDS-040-BL	331441-08	13,782
L-LL-MSDS-040-BL	331442-08	13,782
L-LL-MSDS-040-BL	331444-08	13,782

45,780
Total Weight: ~~44,135 LB~~
Total Units: 14 Rolls/12 Welding Rods
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

OK

C.O.D. TO: **AGRU/AMERICA, INC.**
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE ☑ Prepaid ☐ Collect $

hipment moves between two ports by a carrier by
he law requires that the bill of lading shall state
it is "carrier's or shipper's weight".

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

r's imprint in lieu of stamp; not a part of bill of lading
d by the Interstate Commerce Commission.

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Coll

to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportati

Shipper, Per PP

Agent, Per

Page 1 of 1

nt post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 8/13/2008 TIME: 4:50 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK 646 Bill No. 020778

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*:

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 50 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Clear TEMP: 65 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

CARRIER TRUCK | CARRIER'S NO. 646 | DATE 8/11/2008 | B/L NO. 020778

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading.
property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

FROM: SHIPPER (ORIGIN)
AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: CONSIGNEE
HALLATON, INC.
C/O THALLE CONSTRUCTION
STREET 9016 DEPONIE DR.
DESTINATION RALEIGH, NC 27615
KENNEDY GARBER-410-583-7700
ZIP

DELIVERING CARRIER TST | ROUTE | VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ONLY)
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~ 45,150			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	331560-08	13,782
L-LL-MSDS-040-BL	331561-08	13,782
L-LL-MSDS-040-BL	331562-08	13,782
L-LL-MSDS-040-BL	331563-08	13,782
L-LL-MSDS-040-BL	331564-08	13,782
L-LL-MSDS-040-BL	331565-08	13,782
L-LL-MSDS-040-BL	331666-08	13,782
L-LL-MSDS-040-BL	331667-08	13,782
L-LL-MSDS-040-BL	331668-08	13,782
L-LL-MSDS-040-BL	331669-08	13,782
L-LL-MSDS-040-BL	331670-08	13,782
L-LL-MSDS-040-BL	331671-08	13,782
L-LL-MSDS-040-BL	331672-08	13,782
L-LL-MSDS-040-BL	331790-08	13,782

45,150
Total Weight: ~~43,871~~ LB
Total Units: 14 Rolls
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

OK

PERMIT C.O.D. TO:
AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE
☑ Prepaid
☐ Collect $

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight".

Shipper's imprint in lieu of stamp; not a part of bill of lading approved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.

Shipper, Per PD

Agent, Per

Permanent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 8/13/2008 TIME: 5:50 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK Bill No. 020777

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*:

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 50 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Clear TEMP: 65 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

RAIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

ME OF CARRIER	CARRIER'S NO.	DATE	B/L NO.
TRUCK		8/11/2008	020777

IVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading.
roperty described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrie
rstood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to de
ier carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or
property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on t
of, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
per hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and cor
ereby agreed to by the shipper and accepted for himself and his assigns.

OM: IIPPER ORIGIN)	AGRU/AMERICA, INC. 500 GARRISON ROAD GEORGETOWN, SOUTH CAROLINA 29440 (843) 546-0600	TO: CONSIGNEE	HALLATON, INC. C/O THALLE CONSTRUCTION 9016 DEPONIE DR. RALEIGH, NC 27615
	EMERGENCY RESPONSE PHONE NO.	STREET	KENNEDY GARBER-410-583-7700
		DESTINATION	ZIP

IVERING IRIER	ROUTE	VEHICLE NUMBER
TST		

NO. 'ACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~ 45,640			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	332109-08	13,782
L-LL-MSDS-040-BL	332110-08	13,782
L-LL-MSDS-040-BL	332111-08	13,782
L-LL-MSDS-040-BL	332112-08	13,782
L-LL-MSDS-040-BL	332113-08	13,782
L-LL-MSDS-040-BL	332114-08	13,782
L-LL-MSDS-040-BL	332115-08	13,782
L-LL-MSDS-040-BL	332216-08	13,782
L-LL-MSDS-040-BL	332217-08	13,782
L-LL-MSDS-040-BL	332218-08	13,782
L-LL-MSDS-040-BL	332219-08	13,782
L-LL-MSDS-040-BL	332220-08	13,782
L-LL-MSDS-040-BL	332221-08	13,782
L-LL-MSDS-040-BL	332222-08	13,782

45,640

Total Weight: ~~43,871~~ LB

Total Units: 14 Rolls

Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08

Location: GTOWN P.O. No.: P6639

dle

IIT C.O.D. TO:

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE
- [x] Prepaid
- [ ] Collect $

ie shipment moves between two ports by a carrier by r, the law requires that the bill of lading shall state her it is "carrier's or shipper's weight".

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges a

pper's imprint in lieu of stamp; not a part of bill of lading ved by the Interstate Commerce Commission.

is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Tra

Shipper, Per PD

Agent, Per

anent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 8/13/2008 TIME: 6:00 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK Bill No. 020770

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*: 4 weld rods

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 50 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Clear TEMP: 65 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

HT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

ME OF CARRIER	CARRIER'S NO.	DATE	B/L NO.
TRUCK		8/11/2008	020770

CEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carri derstood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to d other carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all d property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on reof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. ipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and co hereby agreed to by the shipper and accepted for himself and his assigns.

ROM: HIPPER (ORIGIN)	AGRU/AMERICA, INC. 500 GARRISON ROAD GEORGETOWN, SOUTH CAROLINA 29440 (843) 546-0600	TO: CONSIGNEE	HALLATON, INC. C/O THALLE CONSTRUCTION 9016 DEPONIE DR. RALEIGH, NC 27615
	EMERGENCY RESPONSE PHONE NO.	STREET	KENNEDY GARBER-410-583-7700
		DESTINATION	ZIP

LIVERING RRIER	ROUTE	VEHICLE NUMBER
TDT		

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~			
88		WELD ROD MFG BLACK LDPE 4MM	88			
			45,640			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	331673-08	13,782
L-LL-MSDS-040-BL	331674-08	13,782
L-LL-MSDS-040-BL	331675-08	13,782
L-LL-MSDS-040-BL	331676-08	13,782
L-LL-MSDS-040-BL	331677-08	13,782
L-LL-MSDS-040-BL	331678-08	13,782
L-LL-MSDS-040-BL	331679-08	13,782
L-LL-MSDS-040-BL	331780-08	13,782
L-LL-MSDS-040-BL	331781-08	13,782
L-LL-MSDS-040-BL	331782-08	13,782
L-LL-MSDS-040-BL	331783-08	13,782
L-LL-MSDS-040-BL	331784-08	13,782
L-LL-MSDS-040-BL	331785-08	13,782
L-LL-MSDS-040-BL	331786-08	13,782

45640
Total Weight: ~~43,959~~ LB
Total Units: 14 Rolls / 4 welding Rods
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

olc

MIT C.O.D. TO: AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE
[✓] Prepaid
[ ] Collect $

the shipment moves between two ports by a carrier by ter, the law requires that the bill of lading shall state ther it is "carrier's or shipper's weight".

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. [ ] Check box if charges are

hipper's imprint in lieu of stamp; not a part of bill of lading roved by the Interstate Commerce Commission.

s is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transp

Shipper, Per PD Agent, Per

manent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 9/25/2008 TIME: 3:20 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK Bill No. 021184

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*:

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 70 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Sunny TEMP: 55 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

RAIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

ME OF CARRIER TRUCK | CARRIER'S NO. | DATE 9/23/2008 | B/L NO. 021184

EIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier b
erstood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliv
her carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or a
property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the
of, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
per hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and condi
ereby agreed to by the shipper and accepted for himself and his assigns.

OM: HIPPER ORIGIN)

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: HALLATON, INC.
CONSIGNEE C/O THALLE CONSTRUCTION
9016 DEPONIE DR.
RALEIGH, NC 27615
STREET KENNEDY GARBER-410-583-7700
DESTINATION ZIP

IVERING RRIER Store Cont. | ROUTE | VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ONI
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~ 45570			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	331788-08	13,782
L-LL-MSDS-040-BL	331789-08	13,782
L-LL-MSDS-040-BL	332101-08	13,782
L-LL-MSDS-040-BL	332102-08	13,782
L-LL-MSDS-040-BL	332103-08	13,782
L-LL-MSDS-040-BL	332104-08	13,782
L-LL-MSDS-040-BL	332105-08	13,782
L-LL-MSDS-040-BL	332106-08	13,782
L-LL-MSDS-040-BL	332107-08	13,782
L-LL-MSDS-040-BL	332108-08	13,782
L-LL-MSDS-040-BL	333568-08	13,782
L-LL-MSDS-040-BL	333682-08	13,782
L-LL-MSDS-040-BL	333792-08	13,782
L-LL-MSDS-040-BL	333797-08	13,782

Total Weight: ~~43,871 LB~~ 45570
Total Units: 14 Rolls
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

9-24-08

OK

IT C.O.D. TO:

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE ☒ Prepaid ☐ Collect $

shipment moves between two ports by a carrier by the law requires that the bill of lading shall state er it is "carrier's or shipper's weight".

per's imprint in lieu of stamp; not a part of bill of lading ved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Coll

s to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportat

Shipper, Per RMD Agent, Per

ment post office address of shipper Page 1 of 1

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

transporting hazardous materials include the technical or chemical name for n.o.s. (not otherwise specified) or generic description of material with appropriate UN or NA number as defined in US DOT Emergency Response unication Standard (HM-126C). Provide emergency response phone number in case of incident or accident.

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 9/25/2008 TIME: 6:20 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK Bill No. 021178

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*:

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 100 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Sunny TEMP: 55 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

B/L NO. 021178

CARRIER TRUCK | CARRIER'S NO. | DATE 9/23/2008

VED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
operty described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier be
stood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to delive
er carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any
roperty, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the d
f, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
er hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditi
reby agreed to by the shipper and accepted for himself and his assigns.

DM: PPER RIGIN)

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: HALLATON, INC.
CONSIGNEE C/O THALLE CONSTRUCTION
9016 DEPONIE DR.
RALEIGH, NC 27615
STREET KENNEDY GARBER-410-583-7700

DESTINATION ZIP

VERING RIER TOT | ROUTE | VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ONL
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~ 44,450			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	333561-08	13,782
L-LL-MSDS-040-BL	333562-08	13,782
L-LL-MSDS-040-BL	333563-08	13,782
L-LL-MSDS-040-BL	333565-08	13,782
L-LL-MSDS-040-BL	333570-08	13,782
L-LL-MSDS-040-BL	333674-08	13,782
L-LL-MSDS-040-BL	333676-08	13,782
L-LL-MSDS-040-BL	333678-08	13,782
L-LL-MSDS-040-BL	333679-08	13,782
L-LL-MSDS-040-BL	333680-08	13,782
L-LL-MSDS-040-BL	333786-08	13,782
L-LL-MSDS-040-BL	333787-08	13,782
L-LL-MSDS-040-BL	333790-08	13,782
L-LL-MSDS-040-BL	333794-08	13,782

Total Weight: ~~43,871~~ 44,450 LB
Total Units: 4 Rolls
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

9-24-08

IT C.O.D. TO:
AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE ☒ Prepaid ☐ Collect $

ne shipment moves between two ports by a carrier by
r, the law requires that the bill of lading shall state
ther it is "carrier's or shipper's weight".

ipper's imprint in lieu of stamp; not a part of bill of lading
oved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Colle

is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transporta

Shipper, Per

Agent, Per

manent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

en transporting hazardous materials include the technical or chemical name for n.o.s. (not otherwise specified) or generic description of material with appropriate UN or NA number as defined in US DOT Emergency Response
mmunication Standard (HM-126C). Provide emergency response phone number in case of incident or accident.

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 9/25/2008 TIME: 4:20 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK Bill No. 021176

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*:

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Edilzar Enzueto (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 100 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Sunny TEMP: 55 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

SHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

OF CARRIER TRUCK | CARRIER'S NO. | DATE 9/23/2008 | B/L NO. 021176

CEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier derstood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deli ther carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or a f property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the eof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
pper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and cond hereby agreed to by the shipper and accepted for himself and his assigns.

ROM: HIPPER ORIGIN)

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO: CONSIGNEE HALLATON, INC.
C/O THALLE CONSTRUCTION
9016 DEPONIE DR.
RALEIGH, NC 27615
STREET KENNEDY GARBER-410-583-7700

DESTINATION ZIP

LIVERING RRIER TDK | ROUTE | VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ON
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	43,871			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	331787-08	13,782
L-LL-MSDS-040-BL	333556-08	13,782
L-LL-MSDS-040-BL	333557-08	13,782
L-LL-MSDS-040-BL	333558-08	13,782
L-LL-MSDS-040-BL	333559-08	13,782
L-LL-MSDS-040-BL	333560-08	13,782
L-LL-MSDS-040-BL	333564-08	13,782
L-LL-MSDS-040-BL	333567-08	13,782
L-LL-MSDS-040-BL	333671-08	13,782
L-LL-MSDS-040-BL	333672-08	13,782
L-LL-MSDS-040-BL	333673-08	13,782
L-LL-MSDS-040-BL	333675-08	13,782
L-LL-MSDS-040-BL	333677-08	13,782
L-LL-MSDS-040-BL	333788-08	13,782

Total Weight: ~~43,871~~ LB 47530
Total Units: 14 Rolls
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

9K

IT C.O.D. TO:

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE
Prepaid
Collect $

TOTAL CHARGES $

shipment moves between two ports by a carrier by , the law requires that the bill of lading shall state er it is "carrier's or shipper's weight".

per's imprint in lieu of stamp; not a part of bill of lading ved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

Freight charges are PREPAID unless marked collect. Check box if charges are Collec

e to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportatio

Shipper, Per RMJ

Agent, Per

ment post office address of shipper Page 1 of 1

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.
transporting hazardous materials include the technical or chemical name for n.o.s. (not otherwise specified) or generic description of material with appropriate UN or NA number as defined in US DOT Emergency Response unication Standard (HM-126C). Provide emergency response phone number in case of incident or accident.

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 9/25/2008 TIME: 4:20 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK Bill No. 021186

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*:

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Arturo Sanchez (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 100 ft (crown area)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Sunny TEMP: 54 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

STRAIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

NAME OF CARRIER	CARRIER'S NO.	DATE	B/L NO.
TRUCK		9/23/2008	021186

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading, property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deli other carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or a said property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and condi are hereby agreed to by the shipper and accepted for himself and his assigns.

FROM: SHIPPER (ORIGIN)		TO: CONSIGNEE	HALLATON, INC. C/O THALLE CONSTRUCTION
AGRU/AMERICA, INC. 500 GARRISON ROAD GEORGETOWN, SOUTH CAROLINA 29440 (843) 546-0600		STREET	9016 DEPONIE DR. RALEIGH, NC 27615 KENNEDY GARBER-410-583-7700
	EMERGENCY RESPONSE PHONE NO.	DESTINATION	ZIP

DELIVERING CARRIER	ROUTE	VEHICLE NUMBER
STAND		

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ON
192,944		MICRO SPIKE DOUBLE SIDED LL 40 MIL	~~43,871~~ 44800			

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	333566-08	13,782
L-LL-MSDS-040-BL	333569-08	13,782
L-LL-MSDS-040-BL	333681-08	13,782
L-LL-MSDS-040-BL	333683-08	13,782
L-LL-MSDS-040-BL	333684-08	13,782
L-LL-MSDS-040-BL	333685-08	13,782
L-LL-MSDS-040-BL	333700-08	13,782
L-LL-MSDS-040-BL	333789-08	13,782
L-LL-MSDS-040-BL	333791-08	13,782
L-LL-MSDS-040-BL	333795-08	13,782
L-LL-MSDS-040-BL	333796-08	13,782
L-LL-MSDS-040-BL	333798-08	13,782
L-LL-MSDS-040-BL	333799-08	13,782
L-LL-MSDS-040-BL	334101-08	13,782

OK

Total Weight: ~~43,871 LB~~ 44800
Total Units: 14 Rolls
Order No.: 10562 Order Date: 05/27/08 Request Date: 06/27/08
Location: GTOWN P.O. No.: P6639

9-24-08

PERMIT C.O.D. TO: AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE ☒ Prepaid ☐ Collect $

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight".

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Coll

Shipper's imprint in lieu of stamp; not a part of bill of lading approved by the Interstate Commerce Commission.

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportat

Shipper, Per

Agent, Per

Permanent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

In transporting hazardous materials include the technical or chemical name for n.o.s. (not otherwise specified) or generic description of material with appropriate UN or NA number as defined in US DOT Emergency Response Communication Standard (HM-126C). Provide emergency response phone number in case of incident or accident.

6172-55752

FORM CQC - 101
RECEIVING QC LOG
(one sheet per truck)

PROJECT NAME: North Wake Landfill Phase 2 Closure Project

DATE: 11/18/2008 TIME: 4:20 pm PROJECT NUMBER: 6172-55752

TRUCKERS ID: TRUCK Bill No. 021688

NO. OF PIECES ON BOARD: 14 LLDPE Liner rolls AGREE WITH PACKING LIST? Yes

CONDITION OF PACKAGING: Satisfactory

VERIFY PROPER MATERIALS: by label VERIFY PROPER THICKNESS: by label

IDENTIFY ROLL NUMBERS: See packing list

IDENTIFY ACCESSORIES (*adhesive, battens, boots, etc.)*:

IDENTIFY DAMAGED ITEMS: None

TYPE OF UNLOADING EQUIPMENT USED: Grad-all

OPERATOR: Arturo Sanchez (Hallaton)

COMMENTS:None

STORAGE AREA

CONDITION *(surface)*: dry and smooth

LOCATION TO PLACEMENT AREA: approximately 400 ft (toe of the landfill, by Sandtek shop)

MATERIAL PROPERLY COVERED: Yes

WEATHER

CONDITIONS: Sunny TEMP: 47 degree F

SIGNATURES

QC INSPECTOR: *Farouk Banna*

SITE SUPERVISOR: *Josh Baldwin*

Use back for other comments

RAIGHT BILL OF LADING - SHORT FORM - ORIGINAL - NOT NEGOTIABLE

B/L NO. 021688

ME OF CARRIER BEST WAY FRT | CARRIER'S NO. | DATE 11/13/2008

EIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier h
erstood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliv
ther carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or a
property, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the
of, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
per hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and condit
hereby agreed to by the shipper and accepted for himself and his assigns.

FROM:
SHIPPER
ORIGIN)

AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

EMERGENCY RESPONSE PHONE NO.

TO:
CONSIGNEE HALLATON, INC.
CO: THALLE CONSTRUCITON
STREET NORTH WAKE LANDFILL
9016 DEPONIE DRIVE
RALEIGH, NC 27615
KENNEDY GARBER 410-583-7700
DESTINATION ZIP

DELIVERING CARRIER TDT | ROUTE | VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ON
192,944 440		MICRO SPIKE DOUBLE SIDED LL 40 MIL WELD ROD MFG BLACK LDPE 4MM	~~43,871~~ 440	43386		

Item Key	Roll Number	Quantity
L-LL-MSDS-040-BL	246318-08	13782
L-LL-MSDS-040-BL	246321-08	13782
L-LL-MSDS-040-BL	246322-08	13782
L-LL-MSDS-040-BL	246323-08	13782
L-LL-MSDS-040-BL	246324-08	13782
L-LL-MSDS-040-BL	246325-08	13782
L-LL-MSDS-040-BL	246326-08	13782
L-LL-MSDS-040-BL	246327-08	13782
L-LL-MSDS-040-BL	246328-08	13782
L-LL-MSDS-040-BL	246329-08	13782
L-LL-MSDS-040-BL	246330-08	13782
L-LL-MSDS-040-BL	246331-08	13782
L-LL-MSDS-040-BL	246332-08	13782
L-LL-MSDS-040-BL	246333-08	13782

43,386
Total Weight: ~~44,311~~ LB
Total Units: 14 Rolls
Order No.: 11421 Order Date: 11/12/08 Request Date: 11/12/08
Location: GTOWN P.O. No.: P6762

ok

IT C.O.D. TO:
AGRU/AMERICA, INC.
500 GARRISON ROAD
GEORGETOWN, SOUTH CAROLINA 29440
(843) 546-0600

C.O.D. Amt $

C.O.D. FEE
☒ Prepaid
☐ Collect $

e shipment moves between two ports by a carrier by
r, the law requires that the bill of lading shall state
ner it is "carrier's or shipper's weight".

pper's imprint in lieu of stamp; not a part of bill of lading
oved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Co

is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transporta

Shipper, Per PD

Agent, Per

anent post office address of shipper

* MARK WITH "Y" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS

microspike liner				Hallaton North Wake LF doc 10562		PO#	P6639
LLDPE				Raleigh, NC			
40 mil	DIMENSIONS			140 rolls 40 LL micro	140		left
		appx					
roll #	width	length	area	40 spools 5mm LL weld rod	880		lot
(C)331101 .08	7	182.9	1280.3	Hallaton North Wake 140tot 1	3370	3ft + sqs	8171498 (K203)
(C)331102 .08	7	182.9	1280.3	Hallaton North Wake 140tot 2	3335		8171498 (K203)
(C)331103 .08	7	182.9	1280.3	Hallaton North Wake 140tot 3	3330		8171498 (K203)
(C)331104 .08	7	182.9	1280.3	Hallaton North Wake 140tot 4	3295		8171498 (K203)
(C)331105 .08	7	182.9	1280.3	Hallaton North Wake 140tot 5	3290		8171498 (K203)
(C)331106 .08	7	182.9	1280.3	Hallaton North Wake 140tot 6	3010		8171498 (K203)
(C)331107 .08	7	182.9	1280.3	Hallaton North Wake 140tot 7	3230		8171498 (K203)
(C)331208 .08	7	182.9	1280.3	Hallaton North Wake 140tot 8	3455	stage	8171498 (K203)
(C)331209 .08	7	182.9	1280.3	Hallaton North Wake 140tot 9	3375		8171498 (K203)
(C)331210 .08	7	182.9	1280.3	Hallaton North Wake 140tot 10	3375		8171498 (K203)
(C)331211 .08	7	182.9	1280.3	Hallaton North Wake 140tot 11	3370		8171498 (K203)
(C)331212 .08	7	182.9	1280.3	Hallaton North Wake 140tot 12	3375		8171498 (K203)
(C)331213 .08	7	182.9	1280.3	Hallaton North Wake 140tot 13	3375		8171498 (K203)
(C)331214 .08	7	182.9	1280.3	Hallaton North Wake 140tot 14	3140		8171498 (K203)
(C)331216 .08	7	182.9	1280.3	Hallaton North Wake 140tot 15	3265	stage	8171498 (K203)
(C)331217 .08	7	182.9	1280.3	Hallaton North Wake 140tot 16	3270		8171498 (K203)
(C)331218 .08	7	182.9	1280.3	Hallaton North Wake 140tot 17	3270		8171498 (K203)
(C)331219 .08	7	182.9	1280.3	Hallaton North Wake 140tot 18	3265		8171498 (K203)
(C)331220 .08	7	182.9	1280.3	Hallaton North Wake 140tot 19	3260		8171498 (K203)
(C)331221 .08	7	182.9	1280.3	Hallaton North Wake 140tot 20	3265		8171498 (K203)
(C)331322 .08	7	182.9	1280.3	Hallaton North Wake 140tot 21	3265		8171498 (K203)
(C)331323 .08	7	182.9	1280.3	Hallaton North Wake 140tot 22	3265	stage	8171498 (K203)
(C)331438 .08	7	182.9	1280.3	Hallaton North Wake 140tot 23	3140		8171498 (K203)
(C)331439 .08	7	182.9	1280.3	Hallaton North Wake 140tot 24	3135		8171498 (K203)
(C)331440 .08	7	182.9	1280.3	Hallaton North Wake 140tot 25	3140		8171498 (K203)
(C)331441 .08	7	182.9	1280.3	Hallaton North Wake 140tot 26	3135		8171498 (K203)
(C)331442 .08	7	182.9	1280.3	Hallaton North Wake 140tot 27	3140		8171498 (K203)
(C)331444 .08	7	182.9	1280.3	Hallaton North Wake 140tot 28	3140		8171498 (K203)
(C)331445 .08	7	182.9	1280.3	Hallaton North Wake 140tot 29	3215	stage	8171498 (K203)
(C)331446 .08	7	182.9	1280.3	Hallaton North Wake 140tot 30	3210		8171498 (K203)
(C)331447 .08	7	182.9	1280.3	Hallaton North Wake 140tot 31	3210		8171498 (K203)
(C)331448 .08	7	182.9	1280.3	Hallaton North Wake 140tot 32	3210		8171498 (K203)
(C)331549 .08	7	182.9	1280.3	Hallaton North Wake 140tot 33	3205		8171498 (K203)
(C)331550 .08	7	182.9	1280.3	Hallaton North Wake 140tot 34	3200		8171498 (K203)
(C)331551 .08	7	182.9	1280.3	Hallaton North Wake 140tot 35	3205		8171498 (K203)
(C)331552 .08	7	182.9	1280.3	Hallaton North Wake 140tot 36	3205		8171498 (K203)
(C)331553 .08	7	182.9	1280.3	Hallaton North Wake 140tot 37	3210	stage	8171498 (K203)
(C)331554 .08	7	182.9	1280.3	Hallaton North Wake 140tot 38	3200		8171498 (K203)
(C)331555 .08	7	182.9	1280.3	Hallaton North Wake 140tot 39	3205		8171498 (K203)
(C)331557 .08	7	182.9	1280.3	Hallaton North Wake 140tot 40	3200		8171498 (K203)
(C)331558 .08	7	182.9	1280.3	Hallaton North Wake 140tot 41	3200		8171498 (K203)
(C)331559 .08	7	182.9	1280.3	Hallaton North Wake 140tot 42	3205		8171498 (K203)
(C)331560 .08	7	182.9	1280.3	Hallaton North Wake 140tot 43	3205		8171498 (K203)
(C)331561 .08	7	182.9	1280.3	Hallaton North Wake 140tot 44	3215	stage	8171498 (K203)
(C)331562 .08	7	182.9	1280.3	Hallaton North Wake 140tot 45	3205		8171498 (K203)
(C)331563 .08	7	182.9	1280.3	Hallaton North Wake 140tot 46	3220		8171498 (K203)
(C)331564 .08	7	182.9	1280.3	Hallaton North Wake 140tot 47	3220		8171498 (K203)
(C)331565 .08	7	182.9	1280.3	Hallaton North Wake 140tot 48	3225		8171498 (K203)
(C)331666 .08	7	182.9	1280.3	Hallaton North Wake 140tot 49	3225		8171498 (K203)
(C)331667 .08	7	182.9	1280.3	Hallaton North Wake 140tot 50	3225		8171498 (K203)

microspike liner
LLDPE
40 mil

Hallaton North Wake LF doc 10562
Raleigh, NC

PO#	P6639

140 rolls 40 LL micro	140	left

roll #	DIMENSIONS width	appx length	area	40 spools 5mm LL weld rod			880		lot
(C)331668 .08	7	182.9	1280.3	Hallaton North Wake	140tot	51	3220	stage	8171498 (K203)
(C)331669 .08	7	182.9	1280.3	Hallaton North Wake	140tot	52	3215		8171500 (K203)
(C)331670 .08	7	182.9	1280.3	Hallaton North Wake	140tot	53	3215		8171500 (K203)
(C)331671 .08	7	182.9	1280.3	Hallaton North Wake	140tot	54	3215		8171500 (K203)
(C)331672 .08	7	182.9	1280.3	Hallaton North Wake	140tot	55	3250		8171500 (K203)
(C)331673 .08	7	182.9	1280.3	Hallaton North Wake	140tot	56	3245		8171500 (K203)
(C)331674 .08	7	182.9	1280.3	Hallaton North Wake	140tot	57	3245		8171500 (K203)
(C)331675 .08	7	182.9	1280.3	Hallaton North Wake	140tot	58	3225	stage	8171500 (K203)
(C)331676 .08	7	182.9	1280.3	Hallaton North Wake	140tot	59	3255		8171500 (K203)
(C)331677 .08	7	182.9	1280.3	Hallaton North Wake	140tot	60	3250		8171500 (K203)
(C)331678 .08	7	182.9	1280.3	Hallaton North Wake	140tot	61	3255		8171500 (K203)
(C)331679 .08	7	182.9	1280.3	Hallaton North Wake	140tot	62	3245		8171500 (K203)
(C)331780 .08	7	182.9	1280.3	Hallaton North Wake	140tot	63	3255		8171500 (K203)
(C)331781 .08	7	182.9	1280.3	Hallaton North Wake	140tot	64	3255		8171500 (K203)
(C)331782 .08	7	182.9	1280.3	Hallaton North Wake	140tot	65	3255		8171500 (K203)
(C)331783 .08	7	182.9	1280.3	Hallaton North Wake	140tot	66	3240	stage	8171500 (K203)
(C)331784 .08	7	182.9	1280.3	Hallaton North Wake	140tot	67	3250		8171500 (K203)
(C)331785 .08	7	182.9	1280.3	Hallaton North Wake	140tot	68	3250		8171500 (K203)
(C)331786 .08	7	182.9	1280.3	Hallaton North Wake	140tot	69	3260		8171500 (K203)
(C)331787 .08	7	182.9	1280.3	Hallaton North Wake	140tot	70	3260		8171500 (K203)
(C)331788 .08	7	182.9	1280.3	Hallaton North Wake	140tot	71	3250		8171500 (K203)
(C)331789 .08	7	182.9	1280.3	Hallaton North Wake	140tot	72	3240		8171500 (K203)
(C)331790 .08	7	182.9	1280.3	Hallaton North Wake	140tot	73	3255	stage	8171500 (K203)
(C)332101 .08	7	182.9	1280.3	Hallaton North Wake	140tot	74	3255		8171500 (K203)
(C)332102 .08	7	182.9	1280.3	Hallaton North Wake	140tot	75	3245		8171500 (K203)
(C)332103 .08	7	182.9	1280.3	Hallaton North Wake	140tot	76	3245		8171500 (K203)
(C)332104 .08	7	182.9	1280.3	Hallaton North Wake	140tot	77	3245		8171500 (K203)
(C)332105 .08	7	182.9	1280.3	Hallaton North Wake	140tot	78	3245		8171500 (K203)
(C)332106 .08	7	182.9	1280.3	Hallaton North Wake	140tot	79	3245		8171500 (K203)
(C)332107 .08	7	182.9	1280.3	Hallaton North Wake	140tot	80	3240	stage	8171500 (K203)
(C)332108 .08	7	182.9	1280.3	Hallaton North Wake	140tot	81	3245		8171500 (K203)
(C)332109 .08	7	182.9	1280.3	Hallaton North Wake	140tot	82	3245		8171500 (K203)
(C)332110 .08	7	182.9	1280.3	Hallaton North Wake	140tot	83	3250		8171500 (K203)
(C)332111 .08	7	182.9	1280.3	Hallaton North Wake	140tot	84	3245		8171500 (K203)
(C)332112 .08	7	182.9	1280.3	Hallaton North Wake	140tot	85	3260		8171500 (K203)
(C)332113 .08	7	182.9	1280.3	Hallaton North Wake	140tot	86	3260		8171500 (K203)
(C)332114 .08	7	182.9	1280.3	Hallaton North Wake	140tot	87	3255		8171500 (K203)
(C)332115 .08	7	182.9	1280.3	Hallaton North Wake	140tot	88	3260	stage	8171500 (K203)
(C)332216 .08	7	182.9	1280.3	Hallaton North Wake	140tot	89			8171500 (K203)
(C)332217 .08	7	182.9	1280.3	Hallaton North Wake	140tot	90			8171500 (K203)
(C)332218 .08	7	182.9	1280.3	Hallaton North Wake	140tot	91			8171500 (K203)
(C)332219 .08	7	182.9	1280.3	Hallaton North Wake	140tot	92			8171500 (K203)
(C)332220 .08	7	182.9	1280.3	Hallaton North Wake	140tot	93			8171500 (K203)
(C)332221 .08	7	182.9	1280.3	Hallaton North Wake	140tot	94			8171500 (K203)
(C)332222 .08	7	182.9	1280.3	Hallaton North Wake	140tot	95		stage	8171500 (K203)

APPENDIX B-8

LLDPE Liner Material Quality Certificate

agru america quality control dept.

quality certificate

ROLL # **331101-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.06	mm	42	mil
	MAX:	1.19	mm	47	mil
Asperity GRI GM12: 31 mil	AVE:	1.13	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	
OIT(Standard) ASTM D3895 minutes	144		

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.16	
Carbon Black Content ASTM D4218	Range	%			2.09	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	134 ppi	3,014	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			495.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	161.6	N		36.322	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	325.2	N		73.102	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	404.3	N		90.887	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-28-08**

Signature: [signature]

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quality certificate

ROLL # **331102-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.04	mm	41	mil
	MAX:	1.23	mm	48	mil
Asperity GRI GM12: 37 mil	AVE:	1.15	mm	45	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			.16	
Carbon Black Content ASTM D4218	Range		%			2.09	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24	N/mm	136	ppi	3,014	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			495.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	161.6	N			36.322	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	325.2	N			73.102	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	404.3	N			90.887	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-28-08**

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ROLL # **331103-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.03	mm	41	mil
	MAX:	1.19	mm	47	mil
Asperity GRI GM12: 30 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	144		

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min			.16	
Carbon Black Content ASTM D4218	Range	%			2.09	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	129 ppi	3,014	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			495.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	161.6	N		36.322	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	325.2	N		73.102	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	404.3	N		90.887	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-28-08**

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quality certificate

ROLL # **331104-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.06	mm	42	mil
	MAX:	1.24	mm	49	mil
Asperity GRI GM12: 29 mil	AVE:	1.13	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **144**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.09
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23 N/mm	134 ppi	3,014 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		495.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	161.6 N		36.322 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	325.2 N		73.102 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	404.3 N		90.887 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
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Destination **Raleigh, NC**

Date: **7-28-08**

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ROLL # **331105-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.05** mm	**41** mil
	MAX:	**1.28** mm	**50** mil
Asperity GRI GM12: **33** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.17** mm	**46** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**144**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.16**	
Carbon Black Content ASTM D4218	Range	%				**2.09**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**139**	ppi	**3,014**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**495.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**161.6**	N			**36.322**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.2**	N			**73.102**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**404.3**	N			**90.887**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-28-08**

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ROLL # **331106-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.01** mm	**40** mil
	MAX:	**1.25** mm	**49** mil
Asperity GRI GM12: **35** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.09** mm	**43** mil

Thickness..... **1.0 mm** **40 mil**
Length..... **182.9** m **600.1** feet
Width..... **7.00** m; **23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			**.933**
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.16**
Carbon Black Content ASTM D4218	Range	%			**2.18**
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22** N/mm	**124** ppi	**2,894**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		**453.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**161.6** N		**36.322**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.2** N		**73.102**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**404.3** N		**90.887**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **7-28-08**
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ROLL # **331107-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.87**	mm	**34**	mil
	MAX:	**1.38**	mm	**54**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.03**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.18**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**117**	ppi	**2,894**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**453.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**161.6**	N			**36.322**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.2**	N			**73.102**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**404.3**	N			**90.887**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-28-08**

Signature: _____

Quality Control Department

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ROLL # **331208-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.13 mm	44 mil
	MAX:	1.30 mm	51 mil
Asperity GRI GM12: 41 mil	AVE:	1.19 mm	47 mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	144	

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.16	
Carbon Black Content ASTM D4218	Range	%				2.18	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24	N/mm	136	ppi	2,894	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				453.8	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	161.6	N			36.322	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	325.2	N			73.102	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	404.3	N			90.887	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED	

Customer: **Hallaton, Inc.**
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ROLL # **331209-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.10	mm	43	mil
	MAX:	1.29	mm	51	mil
Asperity GRI GM12: 34 mil	AVE:	1.20	mm	47	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	
OIT(Standard) ASTM D3895 minutes	144		

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.16	
Carbon Black Content ASTM D4218	Range	%			2.18	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24	N/mm	137 ppi	2,894	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			453.8	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	161.6	N		36.322	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	325.2	N		73.102	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	404.3	N		90.887	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

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ROLL # **331210-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.06** mm	**42** mil
	MAX:	**1.34** mm	**53** mil
Asperity GRI GM12: **36** mil	AVE:	**1.21** mm	**48** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.18**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**138**	ppi	**2,894**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**453.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**161.6**	N			**36.322**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**325.2**	N			**73.102**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**404.3**	N			**90.887**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

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ROLL # **331211-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.08	mm	43	mil
	MAX:	1.48	mm	58	mil
Asperity GRI GM12: 35 mil	AVE:	1.23	mm	48	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.16
Carbon Black Content ASTM D4218	Range	%			2.21
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	25	N/mm	145 ppi	2,987 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			510.2
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4	N		33.361 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2	N		64.119 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0	N		87.909 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED

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ROLL # **331212-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH		
	MIN:	1.07 mm	42 mil	Thickness.....	1.0 mm 40 mil
	MAX:	1.29 mm	51 mil	Length.....	182.9 m 600.1 feet
				Width.....	7.00 m; 23.0 feet
Asperity GRI GM12: 36 mil	AVE:	1.19 mm	47 mil		

ODD # : TOP EVEN #: BOTTOM

OIT(Standard) ASTM D3895 minutes **144**

			TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc	.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min	.16
Carbon Black Content ASTM D4218	Range	%	2.21
Carbon Black Dispersion ASTM D5596	Category		10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	25 N/mm 140 ppi	2,987 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%	510.2
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4 N	33.361 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2 N	64.119 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0 N	87.909 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED

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ROLL # **331213-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.09**	mm	**43**	mil
	MAX:	**1.35**	mm	**53**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.17**	mm	**46**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**144**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.16**	
Carbon Black Content ASTM D4218	Range	%				**2.21**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**138**	ppi	**2,987**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**510.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.4**	N			**33.361**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**285.2**	N			**64.119**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**391.0**	N			**87.909**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

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ROLL # **331214-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.09	mm	43	mil
	MAX:	1.28	mm	50	mil
Asperity GRI GM12: 31 mil	AVE:	1.17	mm	46	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1	feet
Width.....	7.00 m;	23.0	feet

OIT(Standard) ASTM D3895 minutes **144**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.21
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24 N/mm	138 ppi	2,987 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		510.2
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4 N		33.361 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2 N		64.119 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0 N		87.909 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

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ROLL # **331216-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.01	mm	40	mil
	MAX:	1.28	mm	50	mil
Asperity GRI GM12: 30 mil	AVE:	1.10	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **144**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.32
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,860 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		483.1
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4 N		33.361 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2 N		64.119 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0 N		87.909 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

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ROLL # **331217-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.02 mm	40 mil
	MAX:	1.28 mm	50 mil
Asperity GRI GM12: 29 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.12 mm	44 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	144	

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min			.16	
Carbon Black Content ASTM D4218	Range	%			2.32	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	126 ppi	2,860	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			483.1	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4	N		33.361	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2	N		64.119	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0	N		87.909	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

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ROLL # **331218-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	0.96	mm	38	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 29 mil	AVE:	1.07	mm	42	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.32
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21 N/mm	120 ppi	2,860 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		483.1
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4 N		33.361 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2 N		64.119 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0 N		87.909 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

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ROLL # **331219-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	0.98 mm	39 mil
	MAX:	1.24 mm	49 mil
Asperity GRI GM12: 33 mil	AVE:	1.10 mm	43 mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.32
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,860 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		483.1
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4 N		33.361 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2 N		64.119 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0 N		87.909 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

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ROLL # **331220-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.99	mm	39	mil
	MAX:	1.25	mm	49	mil
Asperity GRI GM12: 33 mil	AVE:	1.10	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			.16	
Carbon Black Content ASTM D4218	Range		%			2.32	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	124	ppi	2,860	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			483.1	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.4	N			33.361	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.2	N			64.119	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	391.0	N			87.909	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

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ROLL # **331221-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.26	mm	50	mil
Asperity GRI GM12: 33 mil	AVE:	1.11	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.16	
Carbon Black Content ASTM D4218	Range	%				2.25	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	127	ppi	2,915	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				468.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	157.5	N			35.418	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	285.6	N			64.212	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	357.6	N			80.389	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

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ROLL # **331322-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.00** mm	**39** mil
	MAX:	**1.25** mm	**49** mil
Asperity GRI GM12: **31** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.10** mm	**43** mil

Thickness.....	**1.0** mm	**40** mil	
Length.....	**182.9** m	**600.1** feet	
Width.....	**7.00** m;	**23.0** feet	
OIT(Standard) ASTM D3895 minutes	**144**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.25**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**126**	ppi	**2,915**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**468.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**157.5**	N			**35.418**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**285.6**	N			**64.212**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**357.6**	N			**80.389**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-30-08**

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ROLL # **331323-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.26**	mm	**50**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.09**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.25**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**2,915**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**468.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**157.5**	N			**35.418**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**285.6**	N			**64.212**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**357.6**	N			**80.389**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-30-08**

Signature: *[signature]*

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ROLL # **331438-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.01	mm	40	mil
	MAX:	1.21	mm	48	mil
Asperity GRI GM12: 27 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.08	mm	43	mil

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	144		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.16	
Carbon Black Content ASTM D4218	Range	%				2.32	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	126	ppi	2,971	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				467.7	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	169.3	N			38.068	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	346.8	N			77.964	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	403.6	N			90.748	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
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Destination **Raleigh, NC**

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ROLL # **331439-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.94**	mm	**37**	mil
	MAX:	**1.17**	mm	**46**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range	%			**2.32**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**124** ppi	**2,971**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**467.7**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**169.3**	N		**38.068**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**346.8**	N		**77.964**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.6**	N		**90.748**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs		**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-31-08**

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ROLL # **331440-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.94**	mm	**37**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.05**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**144**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.16**	
Carbon Black Content ASTM D4218	Range	%				**2.32**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**123**	ppi	**2,971**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**467.7**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**169.3**	N			**38.068**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**346.8**	N			**77.964**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.6**	N			**90.748**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **331441-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.26**	mm	**50**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.09**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.27**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**124**	ppi	**2,897**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**480.3**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N			**32.585**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**333.5**	N			**74.967**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**362.0**	N			**81.382**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
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Date: **7-31-08**

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ROLL # **331442-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 31 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	144		

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min			.16	
Carbon Black Content ASTM D4218	Range	%			2.27	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	124 ppi	2,897	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			480.3	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9	N		32.585	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	333.5	N		74.967	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	362.0	N		81.382	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-31-08**

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ROLL # **331444-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 32 mil	AVE:	1.11	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.16	
Carbon Black Content ASTM D4218	Range	%				2.27	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	127	ppi	2,897	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				480.3	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9	N			32.585	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	333.5	N			74.967	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	362.0	N			81.382	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-31-08**

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ROLL # **331445-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.01 mm	40 mil
	MAX:	1.18 mm	46 mil
Asperity GRI GM12: 32 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.08 mm	43 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	144	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.27
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	123 ppi	2,897 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		480.3
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9 N		32.585 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	333.5 N		74.967 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	362.0 N		81.382 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-31-08**

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ROLL # **331446-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.99	mm	39	mil
	MAX:	1.21	mm	48	mil
Asperity GRI GM12: 33 mil	AVE:	1.10	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	144		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.16	
Carbon Black Content ASTM D4218	Range	%				2.33	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	125	ppi	2,891	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				487.1	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9	N			32.585	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	333.5	N			74.967	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	362.0	N			81.382	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-31-08**

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ROLL # **331447-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.10**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.33**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**2,891**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**487.1**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N			**32.585**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**333.5**	N			**74.967**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**362.0**	N			**81.382**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **7-31-08**

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ROLL # **331448-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.08**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.33**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**123**	ppi	**2,891**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**487.1**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N			**32.585**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**333.5**	N			**74.967**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**362.0**	N			**81.382**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
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ROLL # **331549-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.12**	mm	**44**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.33**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**127**	ppi	**2,891**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**487.1**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N			**32.585**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**333.5**	N			**74.967**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**362.0**	N			**81.382**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-1-08**

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ROLL # **331550-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.01	mm	40	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 29 mil	AVE:	1.10	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	
OIT(Standard) ASTM D3895 minutes	144		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min				.16	
Carbon Black Content ASTM D4218	Range	%				2.33	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	125	ppi	2,891	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				487.1	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9	N			32.585	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	333.5	N			74.967	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	362.0	N			81.382	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **331551-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.96** mm	**38** mil
	MAX:	**1.18** mm	**46** mil
Asperity GRI GM12: **30** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.08** mm	**43** mil

Thickness.....	**1.0** mm		**40** mil
Length.....	**182.9** m		**600.1** feet
Width.....	**7.00** m;		**23.0** feet
OIT(Standard) ASTM D3895 minutes	**144**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.21**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**123**	ppi	**2,896**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**484.7**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.1**	N			**34.636**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**308.0**	N			**69.253**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**347.2**	N			**78.059**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **331552-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.01	mm	40	mil
	MAX:	1.19	mm	47	mil
Asperity GRI GM12: 27 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **144**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.21
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,896 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		484.7
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	154.1 N		34.636 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	308.0 N		69.253 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	347.2 N		78.059 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **331553-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH	Thickness.....	1.0 mm	40 mil
	MIN:	0.96 mm	38 mil	Length.....	182.9 m	600.1 feet
	MAX:	1.19 mm	47 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 30 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.09 mm	43 mil	OIT(Standard) ASTM D3895 minutes 144		

					TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc		.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g		g/10 min		.16	
Carbon Black Content ASTM D4218	Range		%		2.21	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	124 ppi	2,896	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%		484.7	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%		-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	154.1	N		34.636	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	308.0	N		69.253	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	347.2	N		78.059	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-1-08**

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ROLL # **331554-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.17**	mm	**46**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.07**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.21**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**122**	ppi	**2,896**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**484.7**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.1**	N			**34.636**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**308.0**	N			**69.253**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**347.2**	N			**78.059**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-1-08**

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ROLL # **331555-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.97**	mm	**38**	mil
	MAX:	**1.16**	mm	**46**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.21**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**121**	ppi	**2,896**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**484.7**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.1**	N			**34.636**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**308.0**	N			**69.253**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**347.2**	N			**78.059**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-1-08**

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ROLL # **331557-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.17**	mm	**46**	mil
	AVE:	**1.09**	mm	**43**	mil

Asperity GRI GM12: **31** mil
ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.25**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**129**	ppi	**3,010**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**496.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.1**	N			**34.636**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**308.0**	N			**69.253**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**347.2**	N			**78.059**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-1-08**

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ROLL # **331558-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.08**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.25**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**128**	ppi	**3,010**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**496.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.1**	N			**34.636**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**308.0**	N			**69.253**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**347.2**	N			**78.059**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **331559-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.16**	mm	**46**	mil
Asperity GRI GM12: **32** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.16**	
Carbon Black Content ASTM D4218	Range	%				**2.25**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**126**	ppi	**3,010**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**496.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.1**	N			**34.636**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**308.0**	N			**69.253**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**347.2**	N			**78.059**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **331560-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.00 mm	39 mil
	MAX:	1.17 mm	46 mil
Asperity GRI GM12: 30 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.08 mm	43 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	144	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.25
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	128 ppi	3,010 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		496.8
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	154.1 N		34.636 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	308.0 N		69.253 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	347.2 N		78.059 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
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ROLL # **331561-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.01	mm	40	mil
	MAX:	1.27	mm	50	mil
Asperity GRI GM12: 29 mil	AVE:	1.11	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.16	
Carbon Black Content ASTM D4218	Range	%				2.24	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	129	ppi	2,961	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				517.3	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.6	N			33.629	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	375.4	N			84.399	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	379.0	N			85.217	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
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ROLL # **331562-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.17	mm	46	mil
Asperity GRI GM12: 29 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			.16	
Carbon Black Content ASTM D4218	Range		%			2.24	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	127	ppi	2,961	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			517.3	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.59	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.6	N			33.629	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	375.4	N			84.399	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	379.0	N			85.217	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-1-08**

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ROLL # **331563-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	0.98	mm	39	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.18	mm	46	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 28 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.06	mm	42	mil	OIT(Standard) ASTM D3895 minutes	144	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.24
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,961 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		517.3
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.6 N		33.629 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	375.4 N		84.399 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	379.0 N		85.217 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

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ROLL # **331564-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.96** mm	**38** mil
	MAX:	**1.18** mm	**46** mil
Asperity GRI GM12: **22** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.07** mm	**42** mil

Thickness.....	**1.0** mm		**40** mil
Length.....	**182.9** m		**600.1** feet
Width.....	**7.00** m;		**23.0** feet
OIT(Standard) ASTM D3895 minutes	**144**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.24**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**2,961**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**517.3**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.6**	N			**33.629**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**375.4**	N			**84.399**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**379.0**	N			**85.217**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

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ROLL # **331565-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.20**	mm	**47**	mil
Asperity GRI GM12: **26** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.08**	mm	**43**	mil

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**144**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.24**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**126**	ppi	**2,961**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**517.3**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.6**	N			**33.629**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**375.4**	N			**84.399**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**379.0**	N			**85.217**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

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ROLL # **331666-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.01 mm	40 mil
	MAX:	1.22 mm	48 mil
Asperity GRI GM12: 25 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.10 mm	43 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **144**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.16
Carbon Black Content ASTM D4218	Range	%		2.24
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24 N/mm	135 ppi	3,117 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		494.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.59
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.6 N		33.629 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	375.4 N		84.399 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	379.0 N		85.217 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

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ROLL # **331667-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.04**	mm	**41**	mil
	MAX:	**1.22**	mm	**48**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.11**	mm	**44**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.24**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**136**	ppi	**3,117**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**494.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.6**	N			**33.629**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**375.4**	N			**84.399**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**379.0**	N			**85.217**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
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Date: **8-2-08**

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ROLL # **331668-08** Lot #: **8171498** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.19**	mm	**47**	mil
	AVE:	**1.07**	mm	**42**	mil

Asperity GRI GM12: **30** mil
ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **144**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.16**	
Carbon Black Content ASTM D4218	Range		%			**2.24**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,117**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**494.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.59**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.6**	N			**33.629**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**375.4**	N			**84.399**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**379.0**	N			**85.217**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

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Date: **8-2-08**

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ROLL # **331669-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.00	mm	39	mil
	MAX:	1.22	mm	48	mil
Asperity GRI GM12: 30 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	156		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.24	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	134	ppi	3,117	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				494.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.6	N			33.629	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	375.4	N			84.399	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	379.0	N			85.217	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-2-08**

Signature: *[signature]*

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ROLL # **331670-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.20	mm	47	mil
Asperity GRI GM12: 29 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	
OIT(Standard) ASTM D3895 minutes	156		

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.17	
Carbon Black Content ASTM D4218	Range	%			2.24	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	134 ppi	3,117	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			494.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.6	N		33.629	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	375.4	N		84.399	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	379.0	N		85.217	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
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ROLL # **331671-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.99	mm	39	mil
	MAX:	1.19	mm	47	mil
Asperity GRI GM12: 28 mil	AVE:	1.10	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	156		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.31	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	26	N/mm	146	ppi	3,371	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				496.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2	N			33.087	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4	N			84.613	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8	N			85.846	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
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Date: **8-2-08**

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ROLL # **331672-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.03 mm	41 mil
	MAX:	1.19 mm	47 mil
Asperity GRI GM12: 32 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.09 mm	43 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	156	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.31
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	25 N/mm	145 ppi	3,371 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		496.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2 N		33.087 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4 N		84.613 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8 N		85.846 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
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Date: **8-2-08**

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ROLL # **331673-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.10	mm	43	mil
Asperity GRI GM12: 28 mil	AVE:	1.06	mm	42	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.31	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	25	N/mm	141	ppi	3,371	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				496.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2	N			33.087	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4	N			84.613	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8	N			85.846	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
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Date: **8-2-08**

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ROLL # **331674-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.98	mm	39	mil
	MAX:	1.19	mm	47	mil
Asperity GRI GM12: 32 mil	AVE:	1.05	mm	41	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.31	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24	N/mm	139	ppi	3,371	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				496.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2	N			33.087	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4	N			84.613	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8	N			85.846	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
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ROLL # **331675-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	1.00	mm	39	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.19	mm	47	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 29 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.06	mm	42	mil	OIT(Standard) ASTM D3895 minutes	156	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.31
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	25 N/mm	141 ppi	3,371 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		496.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2 N		33.087 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4 N		84.613 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8 N		85.846 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-2-08**

Signature: [signature]

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ROLL # **331676-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.04	mm	41	mil
	MAX:	1.26	mm	50	mil
Asperity GRI GM12: 32 mil	AVE:	1.12	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.22	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	127	ppi	2,879	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				494.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2	N			33.087	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4	N			84.613	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8	N			85.846	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-2-08**

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ROLL # **331677-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	0.99	mm	39	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.22	mm	48	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 26 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.09	mm	43	mil	OIT(Standard) ASTM D3895 minutes	156	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.22
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,879 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		494.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2 N		33.087 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4 N		84.613 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8 N		85.846 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
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Destination **Raleigh, NC**

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ROLL # **331678-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.98	mm	39	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 28 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.22	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	124	ppi	2,879	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				494.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2	N			33.087	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4	N			84.613	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8	N			85.846	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-2-08**

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ROLL # **331679-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.23	mm	48	mil
Asperity GRI GM12: 28 mil	AVE:	1.08	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	156		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.22	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21	N/mm	122	ppi	2,879	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				494.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2	N			33.087	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4	N			84.613	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8	N			85.846	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-2-08**

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ROLL # **331780-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.01	mm	40	mil
	MAX:	1.19	mm	47	mil
Asperity GRI GM12: 29 mil	AVE:	1.10	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.22	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	125	ppi	2,879	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				494.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	147.2	N			33.087	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	376.4	N			84.613	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	381.8	N			85.846	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

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ROLL # **331781-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.02 mm	40 mil
	MAX:	1.25 mm	49 mil
Asperity GRI GM12: 26 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.11 mm	44 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	156	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.30
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,837 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		499.8
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	152.4 N		34.259 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.4 N		80.566 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	369.9 N		83.152 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

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ROLL # **331782-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	0.98 mm	39 mil
	MAX:	1.23 mm	48 mil
Asperity GRI GM12: 29 mil	AVE:	1.10 mm	43 mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.17	
Carbon Black Content ASTM D4218	Range	%			2.30	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	123 ppi	2,837	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			499.8	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	152.4	N		34.259	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.4	N		80.566	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	369.9	N		83.152	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs		CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

Signature: [signature]

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ROLL # **331783-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.99	mm	39	mil
	MAX:	1.21	mm	48	mil
Asperity GRI GM12: 25 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.09	mm	43	mil

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes 156

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			.17	
Carbon Black Content ASTM D4218	Range		%			2.30	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21	N/mm	122	ppi	2,837	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			499.8	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	152.4	N			34.259	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.4	N			80.566	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	369.9	N			83.152	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

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ROLL # **331784-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	0.92	mm	36	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.19	mm	47	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 34 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.06	mm	42	mil	OIT(Standard) ASTM D3895 minutes	156	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.30
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21 N/mm	118 ppi	2,837 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		499.8
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	152.4 N		34.259 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.4 N		80.566 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	369.9 N		83.152 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

Signature: _____

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ROLL # **331785-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.95** mm	**37** mil
	MAX:	**1.19** mm	**47** mil
Asperity GRI GM12: **30** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.05** mm	**41** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**156**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.30**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**117**	ppi	**2,837**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**499.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**152.4**	N			**34.259**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.4**	N			**80.566**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**369.9**	N			**83.152**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
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Destination **Raleigh, NC**

Date: **8-3-08**

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ROLL # **331786-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.07**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.42**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**127**	ppi	**3,026**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**527.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**152.4**	N			**34.259**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.4**	N			**80.566**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**369.9**	N			**83.152**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

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ROLL # **331787-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.95**	mm	**37**	mil
	MAX:	**1.15**	mm	**45**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.05**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.42**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**3,026**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**527.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**152.4**	N			**34.259**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.4**	N			**80.566**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**369.9**	N			**83.152**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-3-08**

Signature.....

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ROLL # **331788-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.97** mm	**38** mil
	MAX:	**1.15** mm	**45** mil
Asperity GRI GM12: **33** mil	AVE:	**1.07** mm	**42** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.42**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**127**	ppi	**3,026**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**527.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**152.4**	N			**34.259**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.4**	N			**80.566**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**369.9**	N			**83.152**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

Signature: *[signature]*

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ROLL # **331789-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.95** mm	**37** mil
	MAX:	**1.16** mm	**46** mil
Asperity GRI GM12: **29** mil	AVE:	**1.02** mm	**40** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range	%			**2.42**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**122** ppi	**3,026**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**527.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**152.4**	N		**34.259**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.4**	N		**80.566**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**369.9**	N		**83.152**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs		**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-3-08**

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ROLL # **331790-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.00	mm	39	mil
	MAX:	1.26	mm	50	mil
Asperity GRI GM12: 31 mil	AVE:	1.09	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.17
Carbon Black Content ASTM D4218	Range	%			2.42
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	130 ppi	3,026 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			527.2
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	152.4	N		34.259 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.4	N		80.566 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	369.9	N		83.152 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-3-08**

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ROLL # **332101-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	0.93	mm	37	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.26	mm	50	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 31 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.08	mm	43	mil	OIT(Standard) ASTM D3895 minutes 156		

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.27
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24 N/mm	137 ppi	3,217 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		499.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	139.1 N		31.271 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	316.5 N		71.166 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	373.6 N		83.991 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332102-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.98** mm	**39** mil
	MAX:	**1.27** mm	**50** mil
Asperity GRI GM12: **31** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.10** mm	**43** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**156**	

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range	%			**2.27**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm	**139** ppi		**3,217**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**499.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**139.1** N			**31.271**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**316.5** N			**71.166**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**373.6** N			**83.991**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332103-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.95** mm	**37** mil
	MAX:	**1.19** mm	**47** mil
Asperity GRI GM12: **27** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.07** mm	**42** mil

Thickness.....	**1.0** mm	**40** mil	
Length.....	**182.9** m	**600.1** feet	
Width.....	**7.00** m;	**23.0** feet	
OIT(Standard) ASTM D3895 minutes	**156**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.27**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**136**	ppi	**3,217**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**499.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**139.1**	N			**31.271**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**316.5**	N			**71.166**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**373.6**	N			**83.991**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332104-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.97** mm	**38** mil
	MAX:	**1.23** mm	**48** mil
Asperity GRI GM12: **24** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.10** mm	**43** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**156**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.27**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**139**	ppi	**3,217**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**499.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**139.1**	N			**31.271**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**316.5**	N			**71.166**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**373.6**	N			**83.991**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332105-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.96** mm	**38** mil
	MAX:	**1.19** mm	**47** mil
Asperity GRI GM12: **28** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.08** mm	**43** mil

Thickness..... **1.0 mm** **40 mil**
Length..... **182.9** m **600.1** feet
Width..... **7.00** m; **23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		**.933**
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		**.17**
Carbon Black Content ASTM D4218	Range	%		**2.27**
Carbon Black Dispersion ASTM D5596	Category			**10 in Cat. 1**
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24** N/mm	**137** ppi	**3,217** psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		**499.6**
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		**-0.74**
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**139.1** N		**31.271** lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**316.5** N		**71.166** lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**373.6** N		**83.991** lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-4-08**
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ROLL # **332106-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.29**	mm	**51**	mil
Asperity GRI GM12: **36** mil	AVE:	**1.10**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.32**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**133**	ppi	**3,063**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**497.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**139.1**	N			**31.271**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**316.5**	N			**71.166**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**373.6**	N			**83.991**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-4-08**

Signature.....

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ROLL # **332107-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.29	mm	51	mil
Asperity GRI GM12: 29 mil	AVE:	1.08	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.17	
Carbon Black Content ASTM D4218	Range	%			2.32	
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	130 ppi	3,063	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			497.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	139.1	N		31.271	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	316.5	N		71.166	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	373.6	N		83.991	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

Signature: 9x Holmes

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ROLL # **332108-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.23**	mm	**48**	mil
Asperity GRI GM12: **35** mil	AVE:	**1.11**	mm	**44**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.32**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**134**	ppi	**3,063**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**497.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**139.1**	N			**31.271**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**316.5**	N			**71.166**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**373.6**	N			**83.991**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-4-08**

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ROLL # **332109-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.00**	mm	**39**	mil
	MAX:	**1.24**	mm	**49**	mil
Asperity GRI GM12: **31** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.13**	mm	**44**	mil

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**156**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.32**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**136**	ppi	**3,063**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**497.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**139.1**	N			**31.271**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**316.5**	N			**71.166**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**373.6**	N			**83.991**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332110-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.02	mm	40	mil
	MAX:	1.21	mm	48	mil
Asperity GRI GM12: 29 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.09	mm	43	mil

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.32	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	131	ppi	3,063	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				497.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	139.1	N			31.271	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	316.5	N			71.166	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	373.6	N			83.991	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **332111-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.03	mm	41	mil
	MAX:	1.11	mm	44	mil
Asperity GRI GM12: 29 mil	AVE:	1.06	mm	42	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	156		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.48	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21	N/mm	121	ppi	2,889	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				510.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	153.7	N			34.560	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	357.1	N			80.274	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	399.2	N			89.753	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332112-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.01 mm	40 mil
	MAX:	1.16 mm	46 mil
Asperity GRI GM12: 29 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.07 mm	42 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	156	

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.48
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21 N/mm	122 ppi	2,889 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		510.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	153.7 N		34.560 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	357.1 N		80.274 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	399.2 N		89.753 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332113-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.98	mm	39	mil
	MAX:	1.24	mm	49	mil
Asperity GRI GM12: 28 mil	AVE:	1.08	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **156**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.17
Carbon Black Content ASTM D4218	Range	%			2.48
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	123 ppi	2,889	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		510.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	153.7 N		34.560	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	357.1 N		80.274	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	399.2 N		89.753	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332114-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.99** mm	**39** mil
	MAX:	**1.22** mm	**48** mil
Asperity GRI GM12: **30** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.10** mm	**43** mil

Thickness.....	**1.0** mm		**40** mil
Length.....	**182.9** m		**600.1** feet
Width.....	**7.00** m;		**23.0** feet
OIT(Standard) ASTM D3895 minutes	**156**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.48**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**2,889**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**510.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**153.7**	N			**34.560**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**357.1**	N			**80.274**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.2**	N			**89.753**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332115-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.00** mm	**39** mil
	MAX:	**1.23** mm	**48** mil
Asperity GRI GM12: **30** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.09** mm	**43** mil

Thickness.....	**1.0** mm	**40** mil	
Length.....	**182.9** m	**600.1** feet	
Width.....	**7.00** m;	**23.0** feet	
OIT(Standard) ASTM D3895 minutes	**156**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.48**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**124**	ppi	**2,889**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**510.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**153.7**	N			**34.560**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**357.1**	N			**80.274**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.2**	N			**89.753**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-4-08**

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ROLL # **332216-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.99	mm	39	mil
	MAX:	1.28	mm	50	mil
Asperity GRI GM12: 29 mil	AVE:	1.11	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **156**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.32
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,844 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		499.3
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	153.7 N		34.560 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	357.1 N		80.274 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	399.2 N		89.753 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: 8-5-08

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ROLL # **332217-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.00**	mm	**39**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.08**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.32**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**121**	ppi	**2,844**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**499.3**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**153.7**	N			**34.560**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**357.1**	N			**80.274**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.2**	N			**89.753**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-5-08**

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ROLL # **332218-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	1.00	mm	39	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.23	mm	48	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 31 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.09	mm	43	mil	OIT(Standard) ASTM D3895 minutes	156	TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc		.933
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.32
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21 N/mm	122 ppi	2,844 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		499.3
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	153.7 N		34.560 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	357.1 N		80.274 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	399.2 N		89.753 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-5-08**

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ROLL # **332219-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.96**	mm	**38**	mil
	MAX:	**1.21**	mm	**48**	mil
Asperity GRI GM12: **26** mil	AVE:	**1.10**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.32**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**123**	ppi	**2,844**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**499.3**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**153.7**	N			**34.560**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**357.1**	N			**80.274**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.2**	N			**89.753**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-5-08**

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ROLL # **332220-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.98** mm	**39** mil
	MAX:	**1.22** mm	**48** mil
Asperity GRI GM12: **28** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.08** mm	**43** mil

Thickness.....	**1.0** mm		**40** mil
Length.....	**182.9** m		**600.1** feet
Width.....	**7.00** m;		**23.0** feet
OIT(Standard) ASTM D3895 minutes	**156**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.32**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**121**	ppi	**2,844**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**499.3**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**153.7**	N			**34.560**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**357.1**	N			**80.274**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.2**	N			**89.753**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-5-08**

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ROLL # **332221-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.17**	mm	**46**	mil
Asperity GRI GM12: **27** mil	AVE:	**1.08**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **156**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.933**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.28**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**126**	ppi	**2,975**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**458.9**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**154.1**	N			**34.635**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**355.0**	N			**79.811**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**431.5**	N			**97.002**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-5-08**

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ROLL # **332222-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.95	mm	37	mil
	MAX:	1.29	mm	51	mil
Asperity GRI GM12: 35 mil	AVE:	1.12	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	156		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.933	
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.28	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	131	ppi	2,975	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				458.9	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	154.1	N			34.635	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	355.0	N			79.811	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	431.5	N			97.002	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-5-08**

Signature: _____

Quality Control Department

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12/23/05

CoA Date: 12/26/2007

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

CPC Delivery #: 87555352
PO #: 004713
Weight: 185700 LB
Ship Date: 12/26/2007
Package: BULK
Mode: Hopper Car
Car #: PSPX006158
Seal No: 247429

Product:
MARLEX POLYETHYLENE K203 BULK

Lot Number: 8171498

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.160	g/10mi
HLMI Flow Rate	ASTM D1238	15.60	g/10mi
Density	ASTM D1505	0.9220	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Paul S. Newbold
Quality Systems Coordinator

For CoA questions contact Tom Scheirman at 832-813-4637

Chevron Phillips Chemical Company LP

CoA Date: 12/27/2007

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

CPC Delivery #: 87558371
PO #: 004713
Weight: 179900 LB
Ship Date: 12/27/2007
Package: BULK
Mode: Hopper Car
Car #: GOCX058178
Seal No: 247422

Product:
MARLEX POLYETHYLENE K203 BULK

Lot Number: 8171500

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.170	g/10mi
HLMI Flow Rate	ASTM D1238	16.00	g/10mi
Density	ASTM D1505	0.9220	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Paul S. Newbold
Quality Systems Coordinator

For CoA questions contact Tom Scheirman at 832-813-4637

microspike liner				Hallaton North Wake LF doc 10562		PO#	P6639	
LLDPE				Raleigh, NC				
40 mil	DIMENSIONS			140 rolls 40 LL micro	56		left	
		appx						
roll #	width	length	area	40 spools 5mm LL weld rod	880		lot	
(C)333556 .08	7	182.9	1280.3	Hallaton North Wake 140tot 96	3395		8171500 (K203)	1 w
(C)333557 .08	7	182.9	1280.3	Hallaton North Wake 140tot 97	3390		8171500 (K203)	2 w
(C)333558 .08	7	182.9	1280.3	Hallaton North Wake 140tot 98	3390		8171500 (K203)	3 w
(C)333559 .08	7	182.9	1280.3	Hallaton North Wake 140tot 99	3180		8171500 (K203)	4 w
(C)333560 .08	7	182.9	1280.3	Hallaton North Wake 140tot 100	3175		8171500 (K203)	5 w
(C)333561 .08	7	182.9	1280.3	Hallaton North Wake 140tot 101	3180		8171500 (K203)	6 w
(C)333562 .08	7	182.9	1280.3	Hallaton North Wake 140tot 102	3170	Stage	8171500 (K203)	7 w
(C)333563 .08	7	182.9	1280.3	Hallaton North Wake 140tot 103	3160		8171500 (K203)	8 w
(C)333564 .08	7	182.9	1280.3	Hallaton North Wake 140tot 104	3160		8171500 (K203)	9 w
(C)333565 .08	7	182.9	1280.3	Hallaton North Wake 140tot 105	3170		8171500 (K203)	10 w
(C)333566 .08	7	182.9	1280.3	Hallaton North Wake 140tot 106	3160		8171500 (K203)	11 w
(C)333567 .08	7	182.9	1280.3	Hallaton North Wake 140tot 107	3160		8171500 (K203)	12 w
(C)333568 .08	7	182.9	1280.3	Hallaton North Wake 140tot 108	3160		8171500 (K203)	13 w
(C)333569 .08	7	182.9	1280.3	Hallaton North Wake 140tot 109	3165	Stage	8171500 (K203)	14 w
(C)333570 .08	7	182.9	1280.3	Hallaton North Wake 140tot 110	3170		8171500 (K203)	15 w
(C)333671 .08	7	182.9	1280.3	Hallaton North Wake 140tot 111	3160		8171500 (K203)	16 w
(C)333672 .08	7	182.9	1280.3	Hallaton North Wake 140tot 112	3165		8171500 (K203)	17 w
(C)333673 .08	7	182.9	1280.3	Hallaton North Wake 140tot 113	3170		8171500 (K203)	18 w
(C)333674 .08	7	182.9	1280.3	Hallaton North Wake 140tot 114	3170		8171500 (K203)	19 w
(C)333675 .08	7	182.9	1280.3	Hallaton North Wake 140tot 115	3165		8171500 (K203)	20 w
(C)333676 .08	7	182.9	1280.3	Hallaton North Wake 140tot 116	3170		8171500 (K203)	21 w
(C)333677 .08	7	182.9	1280.3	Hallaton North Wake 140tot 117	3155	Stage	8171500 (K203)	22 w
(C)333678 .08	7	182.9	1280.3	Hallaton North Wake 140tot 118	3155		8171500 (K203)	23 w
(C)333679 .08	7	182.9	1280.3	Hallaton North Wake 140tot 119	3155		8171500 (K203)	24 w
(C)333680 .08	7	182.9	1280.3	Hallaton North Wake 140tot 120	3150		8171500 (K203)	25 w
(C)333681 .08	7	182.9	1280.3	Hallaton North Wake 140tot 121	3160		8171500 (K203)	26 w
(C)333682 .08	7	182.9	1280.3	Hallaton North Wake 140tot 122	3150		8171500 (K203)	27 w
(C)333683 .08	7	182.9	1280.3	Hallaton North Wake 140tot 123	3150		8171500 (K203)	28 w
(C)333684 .08	7	182.9	1280.3	Hallaton North Wake 140tot 124	3150	Stage	8171500 (K203)	29 w
(C)333685 .08	7	182.9	1280.3	Hallaton North Wake 140tot 125	3170		8171500 (K203)	30 w
(C)333786 .08	7	182.9	1280.3	Hallaton North Wake 140tot 126	3170		8171500 (K203)	31 w
(C)333787 .08	7	182.9	1280.3	Hallaton North Wake 140tot 127	3165		8171500 (K203)	32 w
(C)333788 .08	7	182.9	1280.3	Hallaton North Wake 140tot 128	3170		8171500 (K203)	33 w
(C)333789 .08	7	182.9	1280.3	Hallaton North Wake 140tot 129	3160		8171500 (K203)	34 w
(C)333790 .08	7	182.9	1280.3	Hallaton North Wake 140tot 130	3155		8171500 (K203)	35 w
(C)333791 .08	7	182.9	1280.3	Hallaton North Wake 140tot 131	3160	Stage	8171500 (K203)	36 w
(C)333792 .08	7	182.9	1280.3	Hallaton North Wake 140tot 132	3170		8171500 (K203)	37 w
(C)333794 .08	7	182.9	1280.3	Hallaton North Wake 140tot 133	3145		8171500 (K203)	38 w
(C)333795 .08	7	182.9	1280.3	Hallaton North Wake 140tot 134	3145		8171500 (K203)	39 w
(C)333796 .08	7	182.9	1280.3	Hallaton North Wake 140tot 135	3145		8171500 (K203)	40 w
(C)333797 .08	7	182.9	1280.3	Hallaton North Wake 140tot 136	3155		8171500 (K203)	41 w
(C)333798 .08	7	182.9	1280.3	Hallaton North Wake 140tot 137	3155		8171500 (K203)	42 w
(C)333799 .08	7	182.9	1280.3	Hallaton North Wake 140tot 138	3190	Stage	8171500 (K203)	43 w
(C)333700 .08	7	182.9	1280.3	Hallaton North Wake 140tot 139	3195		8171500 (K203)	44 w
(C)334101 .08	7	182.9	1280.3	Hallaton North Wake 140tot 140	3195		8171500 (K203)	45 w

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ROLL # **333556-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.02** mm	**40** mil
	MAX:	**1.27** mm	**50** mil
Asperity GRI GM12: **37** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.15** mm	**45** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**155**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.44**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**27**	N/mm	**152**	ppi	**3,365**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**516.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.5**	N			**33.608**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**351.5**	N			**79.023**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**435.7**	N			**97.952**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

Signature: _____

Quality Control Department

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ROLL # **333557-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.05**	mm	**41**	mil
	MAX:	**1.26**	mm	**50**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.16**	mm	**46**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.44**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**27**	N/mm	**154**	ppi	**3,365**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**516.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.5**	N			**33.608**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**351.5**	N			**79.023**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**435.7**	N			**97.952**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

Signature.....

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ROLL # **333558-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH					
Measurement ASTM D5994 (Modified)	MIN:	1.03	mm	41	mil	Thickness.....	1.0 mm	40 mil	
	MAX:	1.27	mm	50	mil	Length.....	182.9 m	600.1	feet
						Width.....	7.00 m;	23.0	feet
Asperity GRI GM12: 35 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.14	mm	45	mil	OIT(Standard) ASTM D3895 minutes	155		

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.44
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	26 N/mm	151 ppi	3,365 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		516.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.5 N		33.608 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	351.5 N		79.023 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	435.7 N		97.952 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: 8-14-08

Signature.....
Quality Control Department

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quality certificate

ROLL # **333559-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.06**	mm	**42**	mil
	MAX:	**1.27**	mm	**50**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.14**	mm	**45**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.33**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**2,911**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**500.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.5**	N			**33.608**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**351.5**	N			**79.023**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**435.7**	N			**97.952**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

Signature: *[signature]*

Quality Control Department

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quality certificate

ROLL # **333560-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.05	mm	41	mil
	MAX:	1.25	mm	49	mil
Asperity GRI GM12: 34 mil	AVE:	1.14	mm	45	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				.934	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				.17	
Carbon Black Content ASTM D4218	Range	%				2.33	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	131	ppi	2,911	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				500.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	149.5	N			33.608	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	351.5	N			79.023	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	435.7	N			97.952	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

Signature.....

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quality certificate

ROLL # **333561-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.16**	mm	**46**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.33**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**121**	ppi	**2,911**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**500.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.5**	N			**33.608**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**351.5**	N			**79.023**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**435.7**	N			**97.952**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-14-08**

Signature.....

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ROLL # **333562-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.99** mm	**39** mil
	MAX:	**1.19** mm	**47** mil
Asperity GRI GM12: **32** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.09** mm	**43** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**155**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.33**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**2,911**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**500.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.5**	N			**33.608**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**351.5**	N			**79.023**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**435.7**	N			**97.952**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

Signature: *[signature]*

Quality Control Department

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ROLL # **333563-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.04** mm	**41** mil
	MAX:	**1.18** mm	**46** mil
Asperity GRI GM12: **29** mil	AVE:	**1.09** mm	**43** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**155**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.33**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**2,911**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**500.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**149.5**	N			**33.608**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**351.5**	N			**79.023**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**435.7**	N			**97.952**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

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ROLL # **333564-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.00** mm	**39** mil
	MAX:	**1.17** mm	**46** mil
Asperity GRI GM12: **30** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.07** mm	**42** mil

Thickness.....	**1.0** mm	**40** mil	
Length.....	**182.9** m	**600.1** feet	
Width.....	**7.00** m;	**23.0** feet	
OIT(Standard) ASTM D3895 minutes	**155**		

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range	%			**2.34**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22** N/mm	**124** ppi		**2,948**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**506.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9** N			**32.580**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**341.9** N			**76.863**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.8** N			**90.777**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

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ROLL # **333565-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.01**	mm	**40**	mil
	MAX:	**1.14**	mm	**45**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			**.934**
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**
Carbon Black Content ASTM D4218	Range	%			**2.34**
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22** N/mm	**123** ppi	**2,948**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		**506.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9** N		**32.580**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**341.9** N		**76.863**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.8** N		**90.777**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

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ROLL # **333566-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	0.99	mm	39	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.09	mm	43	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 27 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.07	mm	42	mil	OIT(Standard) ASTM D3895 minutes 155		

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.34
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,948 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		506.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9 N		32.580 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	341.9 N		76.863 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	403.8 N		90.777 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
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Destination **Raleigh, NC**

Date: **8-14-08**

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ROLL # **333567-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.97** mm	**38** mil
	MAX:	**1.08** mm	**43** mil
Asperity GRI GM12: **24** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.05** mm	**41** mil

			TEST RESULTS
Thickness.....	**1.0** mm	**40** mil	
Length.....	**182.9** m	**600.1** feet	
Width.....	**7.00** m;	**23.0** feet	
OIT(Standard) ASTM D3895 minutes	**155**		

Specific Gravity ASTM D792	Density	g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range	%			**2.34**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**122** ppi	**2,948**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**506.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N		**32.580**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**341.9**	N		**76.863**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.8**	N		**90.777**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs		**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-14-08**

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ROLL # **333568-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.95	mm	37	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 29 mil	AVE:	1.07	mm	42	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm		40 mil
Length.....	182.9 m		600.1 feet
Width.....	7.00 m;		23.0 feet
OIT(Standard) ASTM D3895 minutes	155		

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.934	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			.17	
Carbon Black Content ASTM D4218	Range		%			2.34	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22	N/mm	124	ppi	2,948	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			506.6	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9	N			32.580	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	341.9	N			76.863	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	403.8	N			90.777	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

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ROLL # **333569-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

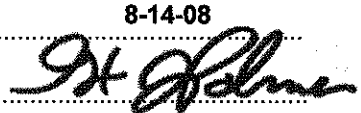
Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.03 mm	41 mil
	MAX:	1.17 mm	46 mil
Asperity GRI GM12: 32 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.08 mm	43 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	155	

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min			.17
Carbon Black Content ASTM D4218	Range	%			2.64
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	123 ppi	2,900	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		497.8	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9 N		32.580	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	341.9 N		76.863	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	403.8 N		90.777	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

Signature: 

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ROLL # **333570-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH			
	MIN:	1.00 mm	39 mil	Thickness.....	1.0 mm	40 mil
	MAX:	1.17 mm	46 mil	Length.....	182.9 m	600.1 feet
				Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 38 mil	AVE:	1.09 mm	43 mil			

ODD # : TOP EVEN #: BOTTOM

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.64
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	124 ppi	2,900 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		497.8
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	144.9 N		32.580 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	341.9 N		76.863 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	403.8 N		90.777 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-14-08**

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ROLL # **333671-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.91**	mm	**36**	mil
	MAX:	**1.09**	mm	**43**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.03**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.64**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**118**	ppi	**2,900**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**497.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N			**32.580**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**341.9**	N			**76.863**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.8**	N			**90.777**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

Signature: *[signature]*

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ROLL # **333672-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.03**	mm	**41**	mil
	MAX:	**1.28**	mm	**50**	mil
Asperity GRI GM12: **36** mil	AVE:	**1.10**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.64**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**126**	ppi	**2,900**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**497.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N			**32.580**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**341.9**	N			**76.863**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.8**	N			**90.777**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date:..... **8-15-08**

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ROLL # **333673-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**1.02**	mm	**40**	mil
	MAX:	**1.14**	mm	**45**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.07**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.64**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**122**	ppi	**2,900**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**497.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**144.9**	N			**32.580**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**341.9**	N			**76.863**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**403.8**	N			**90.777**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

Signature: *[signature]*

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ROLL # **333674-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.01** mm	**40** mil
	MAX:	**1.14** mm	**45** mil
Asperity GRI GM12: **38** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.09** mm	**43** mil

Thickness..... **1.0 mm** **40 mil**
Length..... **182.9** m **600.1** feet
Width..... **7.00** m; **23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range	%			**2.22**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22** N/mm	**126** ppi		**2,946**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**504.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**135.2** N			**30.390**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**385.1** N			**86.580**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**415.7** N			**93.464**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333675-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**1.01** mm	**40** mil
	MAX:	**1.17** mm	**46** mil
Asperity GRI GM12: **30** mil	AVE:	**1.08** mm	**43** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range	%			**2.22**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22** N/mm	**125** ppi		**2,946**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**504.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**135.2** N			**30.390**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**385.1** N			**86.580**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**415.7** N			**93.464**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
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Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333676-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH			
	MIN:	0.92 mm	36 mil	Thickness.....	1.0 mm	40 mil
	MAX:	1.18 mm	46 mil	Length.....	182.9 m	600.1 feet
				Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 32 mil	AVE:	1.06 mm	42 mil			

ODD # : TOP EVEN #: BOTTOM

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.22
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	123 ppi	2,946 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		504.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	135.2 N		30.390 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	385.1 N		86.580 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	415.7 N		93.464 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
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ROLL # **333677-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.16**	mm	**46**	mil
Asperity GRI GM12: **25** mil	AVE:	**1.04**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	**m**	**600.1** feet
Width.....	**7.00**	**m;**	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.22**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**121**	ppi	**2,946**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**504.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**135.2**	N			**30.390**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**385.1**	N			**86.580**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**415.7**	N			**93.464**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
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ROLL # **333678-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.17**	mm	**46**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.22**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**123**	ppi	**2,946**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**504.6**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**135.2**	N			**30.390**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**385.1**	N			**86.580**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**415.7**	N			**93.464**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333679-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.98** mm	**39** mil
	MAX:	**1.09** mm	**43** mil
Asperity GRI GM12: **21** mil	AVE:	**1.05** mm	**41** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.35**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**125**	ppi	**3,020**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**501.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**135.2**	N			**30.390**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**385.1**	N			**86.580**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**415.7**	N			**93.464**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
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Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333680-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	0.97 mm	38 mil
	MAX:	1.16 mm	46 mil
Asperity GRI GM12: 27 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.07 mm	42 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.35
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	127 ppi	3,020 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		501.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	135.2 N		30.390 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	385.1 N		86.580 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	415.7 N		93.464 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333681-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	0.94	mm	37	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 22 mil	AVE:	1.08	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.35
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	128 ppi	3,020 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		501.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	135.2 N		30.390 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	385.1 N		86.580 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	415.7 N		93.464 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333682-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.02 mm	40 mil
	MAX:	1.08 mm	43 mil
Asperity GRI GM12: 27 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.05 mm	41 mil

Thickness..... 1.0 mm 40 mil
Length..... 182.9 m 600.1 feet
Width..... 7.00 m; 23.0 feet

OIT(Standard) ASTM D3895 minutes 155

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.35
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	125 ppi	3,020 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		501.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	135.2 N		30.390 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	385.1 N		86.580 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	415.7 N		93.464 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333683-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.90** mm	**35** mil
	MAX:	**1.12** mm	**44** mil
Asperity GRI GM12: **25** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.07** mm	**42** mil

Thickness.....	**1.0** mm	**40** mil	
Length.....	**182.9** m	**600.1** feet	
Width.....	**7.00** m;	**23.0** feet	
OIT(Standard) ASTM D3895 minutes	**155**		

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range	%			**2.35**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22** N/mm	**127** ppi		**3,020**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**501.4**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**135.2** N			**30.390**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**385.1** N			**86.580**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**415.7** N			**93.464**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333684-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.96** mm	**38** mil
	MAX:	**1.13** mm	**44** mil
Asperity GRI GM12: **30** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.05** mm	**41** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**155**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.28**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**21**	N/mm	**121**	ppi	**2,935**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**488.5**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**133.5**	N			**30.011**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.2**	N			**80.527**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**405.3**	N			**91.121**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333685-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	0.96	mm	38	mil
	MAX:	1.19	mm	47	mil
Asperity GRI GM12: 31 mil	AVE:	1.08	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.28
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	22 N/mm	125 ppi	2,935 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		488.5
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	133.5 N		30.011 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.2 N		80.527 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	405.3 N		91.121 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-15-08**

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ROLL # **333786-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.96	mm	38	mil
	MAX:	1.21	mm	48	mil
Asperity GRI GM12: 36 mil	AVE:	1.06	mm	42	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1	feet
Width.....	7.00 m;	23.0	feet

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.28
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	21 N/mm	122 ppi	2,935 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		488.5
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	133.5 N		30.011 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.2 N		80.527 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	405.3 N		91.121 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333787-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.01 mm	40 mil
	MAX:	1.39 mm	55 mil
Asperity GRI GM12: 32 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.14 mm	45 mil

Thickness..... 1.0 mm 40 mil
Length..... 182.9 m 600.1 feet
Width..... 7.00 m; 23.0 feet

OIT(Standard) ASTM D3895 minutes 155

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min			.17
Carbon Black Content ASTM D4218	Range	%			2.28
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23 N/mm	132 ppi	2,935	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		488.5	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	133.5 N		30.011	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.2 N		80.527	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	405.3 N		91.121	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: 8-16-08

Signature.....

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ROLL # **333788-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	1.01	mm	40	mil
	MAX:	1.22	mm	48	mil
Asperity GRI GM12: 31 mil	AVE:	1.12	mm	44	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.28
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23 N/mm	129 ppi	2,935 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		488.5
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	133.5 N		30.011 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.2 N		80.527 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	405.3 N		91.121 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333789-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.92** mm	**36** mil
	MAX:	**1.17** mm	**46** mil
Asperity GRI GM12: **27** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.06** mm	**42** mil

Thickness.....	**1.0** mm	**40** mil	
Length.....	**182.9** m	**600.1** feet	
Width.....	**7.00** m;	**23.0** feet	
OIT(Standard) ASTM D3895 minutes	**155**		

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			**.934**
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			**.17**
Carbon Black Content ASTM D4218	Range	%			**2.26**
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23** N/mm	**132** ppi	**3,163**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		**504.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**133.5** N		**30.011**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.2** N		**80.527**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**405.3** N		**91.121**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333790-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.93** mm	**37** mil
	MAX:	**1.18** mm	**46** mil
Asperity GRI GM12: **34** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.05** mm	**41** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**155**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.26**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,163**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**504.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**133.5**	N			**30.011**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.2**	N			**80.527**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**405.3**	N			**91.121**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333791-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.95**	mm	**37**	mil
	MAX:	**1.13**	mm	**44**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**155**		

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min				**.17**	
Carbon Black Content ASTM D4218	Range	%				**2.26**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**132**	ppi	**3,163**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**504.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**133.5**	N			**30.011**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**358.2**	N			**80.527**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**405.3**	N			**91.121**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

Signature: *D. Holmes*

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ROLL # **333792-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.01 mm	40 mil
	MAX:	1.11 mm	44 mil
Asperity GRI GM12: 35 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.06 mm	42 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **155**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.934
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g	g/10 min			.17
Carbon Black Content ASTM D4218	Range	%			2.26
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23 N/mm	132 ppi	3,163	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		504.0	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	133.5 N		30.011	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	358.2 N		80.527	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	405.3 N		91.121	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333794-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.99**	mm	**39**	mil
	MAX:	**1.21**	mm	**48**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.07**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.43**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**140**	ppi	**3,316**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**494.5**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.2**	N			**33.316**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**387.6**	N			**87.138**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**417.9**	N			**93.947**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333795-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.00	mm	39	mil
	MAX:	1.07	mm	42	mil
Asperity GRI GM12: 30 mil	AVE:	1.04	mm	41	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.934	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			.17	
Carbon Black Content ASTM D4218	Range		%			2.43	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24	N/mm	136	ppi	3,316	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			494.5	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.2	N			33.316	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	387.6	N			87.138	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	417.9	N			93.947	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333796-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.96**	mm	**38**	mil
	MAX:	**1.18**	mm	**46**	mil
Asperity GRI GM12: **26** mil	AVE:	**1.06**	mm	**42**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.43**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**138**	ppi	**3,316**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**494.5**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.2**	N			**33.316**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**387.6**	N			**87.138**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**417.9**	N			**93.947**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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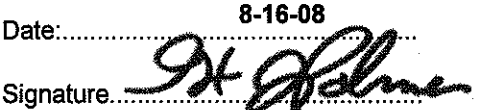
ROLL # **333797-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH		Thickness.....	1.0 mm	40 mil
	MIN:	0.96	mm	38	mil	Length.....	182.9 m	600.1 feet
	MAX:	1.16	mm	46	mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 22 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.06	mm	42	mil	OIT(Standard) ASTM D3895 minutes 155		

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.43
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24 N/mm	138 ppi	3,316 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		494.5
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.2 N		33.316 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	387.6 N		87.138 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	417.9 N		93.947 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

Signature: 

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ROLL # **333798-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

		METRIC		ENGLISH	
Measurement ASTM D5994 (Modified)	MIN:	0.91	mm	36	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 31 mil	AVE:	1.07	mm	42	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0 mm	40 mil	
Length.....	182.9 m	600.1 feet	
Width.....	7.00 m;	23.0 feet	

OIT(Standard) ASTM D3895 minutes **155**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.43
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24 N/mm	140 ppi	3,316 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		494.5
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.2 N		33.316 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	387.6 N		87.138 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	417.9 N		93.947 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333799-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.02 mm	40 mil
	MAX:	1.17 mm	46 mil
Asperity GRI GM12: 30 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.08 mm	43 mil

Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet
OIT(Standard) ASTM D3895 minutes	155	

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min			.17
Carbon Black Content ASTM D4218	Range	%			2.34
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23 N/mm	131 ppi	3,075	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		505.8	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.2 N		33.316	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	387.6 N		87.138	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	417.9 N		93.947	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-16-08**

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ROLL # **333700-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	1.02 mm	40 mil
	MAX:	1.19 mm	47 mil
Asperity GRI GM12: 34 mil ODD # : TOP EVEN #: BOTTOM	AVE:	1.09 mm	43 mil

Thickness..... 1.0 mm 40 mil
Length..... 182.9 m 600.1 feet
Width..... 7.00 m; 23.0 feet

OIT(Standard) ASTM D3895 minutes 155

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.934
MFI ASTM D1238 COND. E GRADE: K203	Melt Flow Index 190°C /2160 g	g/10 min		.17
Carbon Black Content ASTM D4218	Range	%		2.34
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23 N/mm	132 ppi	3,075 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		505.8
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.74
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	148.2 N		33.316 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	387.6 N		87.138 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	417.9 N		93.947 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: 8-16-08
Signature.....
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ROLL # **334101-08** Lot #: **8171500** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.91**	mm	**36**	mil
	MAX:	**1.18**	mm	**46**	mil
Asperity GRI GM12: **31** mil	AVE:	**1.08**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **155**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.934**	
MFI ASTM D1238 COND. E GRADE: **K203**	Melt Flow Index 190°C /2160 g		g/10 min			**.17**	
Carbon Black Content ASTM D4218	Range		%			**2.34**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,075**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**505.8**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.74**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**148.2**	N			**33.316**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**387.6**	N			**87.138**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**417.9**	N			**93.947**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6639**
Destination **Raleigh, NC**

Date: **8-17-08**

Signature.....

Quality Control Department

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Chevron Phillips Chemical Company LP

CoA Date: 12/27/2007

Certificate of Analysis

Shipped To: AGRU AMERICA INC 500 GARRISON RD GEORGETOWN SC 29440 USA	CPC Delivery #: 87558371 PO #: 004713 Weight: 179900 LB Ship Date: 12/27/2007 Package: BULK
Recipient: PALMER Fax:	Mode: Hopper Car Car #: GOCX058178 Seal No: 247422

Product:
MARLEX POLYETHYLENE K203 BULK

Lot Number: 8171500

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.170	g/10mi
HLMI Flow Rate	ASTM D1238	16.00	g/10mi
Density	ASTM D1505	0.9220	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Paul S. Newbold
Quality Systems Coordinator

For CoA questions contact Tom Scheirman at 832-813-4637

microspike liner				Hallaton North Wake LF adds doc 11421		PO#	P6762
LLDPE				Raleigh, NC			
40 mil	DIMENSIONS			16 rolls 40 LL micro	16		left
roll #	width	appx length	area	20 Spools 4MM LDPE Weld Rod	wgt		lot
(C)246318 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 1	3242		CXC811910
(C)246319 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 2	3165		CXC811910
(C)246320 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 3	3106		CXC811910
(C)246321 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 4	3112		CXC811910
(C)246322 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 5	3108		CXC811910
(C)246323 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 6	3121		CXC811910
(C)246324 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 7	3115		CXC811910
(C)246325 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 8	3094		CXC811910
(C)246326 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 9	3099		CXC811910
(C)246327 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 10	3093		CXC811910
(C)246328 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 11	3120		CXC811910
(C)246329 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 12	3100		CXC811910
(C)246330 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 13	3081		CXC811910
(C)246331 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 14	3080		CXC811910
(C)246332 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 15	3082		CXC811910
(C)246333 .08	7	182.9	1280.3	Hallaton North Wake LF 16tot 16	3121		CXC811910
					49839		

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ROLL # **246318-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.92**	mm	**36**	mil
	MAX:	**1.32**	mm	**52**	mil
Asperity GRI GM12: **33** mil	AVE:	**1.13**	mm	**44**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range		%			**2.71**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**25**	N/mm	**141**	ppi	**3,167**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**545.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**170.3**	N			**38.285**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**364.6**	N			**81.968**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**395.2**	N			**88.847**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

Signature: _____

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ROLL # **246319-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.96	mm	38	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 45 mil	AVE:	1.07	mm	42	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.935	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			.34	
Carbon Black Content ASTM D4218	Range		%			2.71	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23	N/mm	133	ppi	3,167	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			545.0	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.75	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	170.3	N			38.285	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	364.6	N			81.968	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	395.2	N			88.847	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

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ROLL # **246320-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.98** mm	**39** mil
	MAX:	**1.27** mm	**50** mil
Asperity GRI GM12: **34** mil	AVE:	**1.08** mm	**43** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g	g/10 min				**.34**	
Carbon Black Content ASTM D4218	Range	%				**2.71**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**135**	ppi	**3,167**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**545.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**170.3**	N			**38.285**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**364.6**	N			**81.968**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**395.2**	N			**88.847**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date:..... **11-11-08**

Signature.....

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ROLL # **246321-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.95** mm	**37** mil
	MAX:	**1.17** mm	**46** mil
Asperity GRI GM12: **30** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.05** mm	**41** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**157**	

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range		%			**2.71**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,167**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**545.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**170.3**	N			**38.285**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**364.6**	N			**81.968**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**395.2**	N			**88.847**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date:..... **11-11-08**

Signature.....

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ROLL # **246322-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	0.96	mm	38	mil
	MAX:	1.18	mm	46	mil
Asperity GRI GM12: 30 mil	AVE:	1.08	mm	43	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	1.0	mm	40 mil
Length.....	182.9	m	600.1 feet
Width.....	7.00	m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			.935	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			.34	
Carbon Black Content ASTM D4218	Range		%			2.71	
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	24	N/mm	135	ppi	3,167	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			545.0	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			-0.75	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	170.3	N			38.285	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	364.6	N			81.968	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	395.2	N			88.847	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			CERTIFIED	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

Signature: [signature]

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ROLL # **246323-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.91**	mm	**36**	mil
	MAX:	**1.18**	mm	**46**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.05**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range		%			**2.67**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,174**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**514.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**170.3**	N			**38.285**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**364.6**	N			**81.968**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**395.2**	N			**88.847**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

Signature:

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ROLL # **246324-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	1.13	mm	44	mil
	MAX:	1.36	mm	54	mil
Asperity GRI GM12: 31 mil	AVE:	1.23	mm	48	mil

ODD # : TOP EVEN #: BOTTOM

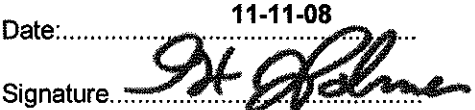
Thickness.....	1.0 mm	40 mil
Length.....	182.9 m	600.1 feet
Width.....	7.00 m;	23.0 feet

OIT(Standard) ASTM D3895 minutes **157**

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			.935
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g	g/10 min			.34
Carbon Black Content ASTM D4218	Range	%			2.67
Carbon Black Dispersion ASTM D5596	Category				10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	27	N/mm	154 ppi	3,174 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			514.2
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			-0.75
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	170.3	N		38.285 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	364.6	N		81.968 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	395.2	N		88.847 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

Signature: 

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ROLL # **246325-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.98**	mm	**39**	mil
	MAX:	**1.21**	mm	**48**	mil
Asperity GRI GM12: **30** mil	AVE:	**1.10**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g	g/10 min				**.34**	
Carbon Black Content ASTM D4218	Range	%				**2.67**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**137**	ppi	**3,174**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**514.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**170.3**	N			**38.285**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**364.6**	N			**81.968**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**395.2**	N			**88.847**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

Signature:

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ROLL # **246326-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.94**	mm	**37**	mil
	MAX:	**1.29**	mm	**51**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.08**	mm	**43**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	**mm**	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range		%			**2.67**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**24**	N/mm	**135**	ppi	**3,174**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**514.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**170.3**	N			**38.285**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**364.6**	N			**81.968**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**395.2**	N			**88.847**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

Signature:

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ROLL # **246327-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.92**	mm	**36**	mil
	MAX:	**1.28**	mm	**50**	mil
Asperity GRI GM12: **28** mil	AVE:	**1.05**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range		%			**2.67**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,174**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**514.2**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**170.3**	N			**38.285**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**364.6**	N			**81.968**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**395.2**	N			**88.847**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date:..... **11-11-08**

Signature.....

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ROLL # **246328-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.91**	mm	**36**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.05**	mm	**41**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40 mil**
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range		%			**2.58**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**131**	ppi	**3,163**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**513.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**156.7**	N			**35.225**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**411.7**	N			**92.548**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.5**	N			**89.817**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date:..... **11-11-08**

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ROLL # **246329-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH		
	MIN:	0.89 mm	35 mil	Thickness.....	1.0 mm 40 mil
	MAX:	1.20 mm	47 mil	Length.....	182.9 m 600.1 feet
				Width.....	7.00 m; 23.0 feet
Asperity GRI GM12: 29 mil	AVE:	1.05 mm	41 mil		

ODD # : TOP EVEN #: BOTTOM

OIT(Standard) ASTM D3895 minutes **157**

				TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc		.935
MFI ASTM D1238 COND. E GRADE: 7104	Melt Flow Index 190°C /2160 g	g/10 min		.34
Carbon Black Content ASTM D4218	Range	%		2.58
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	23 N/mm	131 ppi	3,163 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		513.0
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.75
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	156.7 N		35.225 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	411.7 N		92.548 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	399.5 N		89.817 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

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ROLL # **246330-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.92** mm	**36** mil
	MAX:	**1.24** mm	**49** mil
Asperity GRI GM12: **31** mil	AVE:	**1.07** mm	**42** mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc				**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g	g/10 min				**.34**	
Carbon Black Content ASTM D4218	Range	%				**2.58**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23**	N/mm	**133**	ppi	**3,163**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%				**513.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%				**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**156.7**	N			**35.225**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**411.7**	N			**92.548**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.5**	N			**89.817**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs				**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

Signature: _____

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ROLL # **246331-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.91** mm	**36** mil
	MAX:	**1.19** mm	**47** mil
Asperity GRI GM12: **38** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.05** mm	**41** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**157**	

					TEST RESULTS	
Specific Gravity ASTM D792	Density	g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g	g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range	%			**2.58**	
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23** N/mm	**131** ppi		**3,163**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%			**513.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**156.7** N			**35.225**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**411.7** N			**92.548**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.5** N			**89.817**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date: **11-11-08**

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ROLL # **246332-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC		ENGLISH	
	MIN:	**0.88**	mm	**35**	mil
	MAX:	**1.19**	mm	**47**	mil
Asperity GRI GM12: **29** mil	AVE:	**1.02**	mm	**40**	mil

ODD # : TOP EVEN #: BOTTOM

Thickness.....	**1.0**	mm	**40** mil
Length.....	**182.9**	m	**600.1** feet
Width.....	**7.00**	m;	**23.0** feet

OIT(Standard) ASTM D3895 minutes **157**

						TEST RESULTS	
Specific Gravity ASTM D792	Density		g/cc			**.935**	
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g		g/10 min			**.34**	
Carbon Black Content ASTM D4218	Range		%			**2.58**	
Carbon Black Dispersion ASTM D5596	Category					**10 in Cat. 1**	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**22**	N/mm	**127**	ppi	**3,163**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break		%			**513.0**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change		%			**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**156.7**	N			**35.225**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**411.7**	N			**92.548**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.5**	N			**89.817**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500	hrs			**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date:..... **11-11-08**

Signature.....

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ROLL # **246333-08** Lot #: **CXC811910** **Liner Type: MICROSPIKE™ LLDPE**

Measurement ASTM D5994 (Modified)		METRIC	ENGLISH
	MIN:	**0.89** mm	**35** mil
	MAX:	**1.19** mm	**47** mil
Asperity GRI GM12: **26** mil ODD # : TOP EVEN #: BOTTOM	AVE:	**1.03** mm	**41** mil

Thickness.....	**1.0 mm**	**40 mil**
Length.....	**182.9** m	**600.1** feet
Width.....	**7.00** m;	**23.0** feet
OIT(Standard) ASTM D3895 minutes	**157**	

					TEST RESULTS
Specific Gravity ASTM D792	Density	g/cc			**.935**
MFI ASTM D1238 COND. E GRADE: **7104**	Melt Flow Index 190°C /2160 g	g/10 min			**.34**
Carbon Black Content ASTM D4218	Range	%			**2.57**
Carbon Black Dispersion ASTM D5596	Category				**10 in Cat. 1**
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Break	**23** N/mm	**130** ppi	**3,214**	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Break	%		**502.3**	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		**-0.75**	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	**156.7** N		**35.225**	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	**411.7** N		**92.548**	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	**399.5** N		**89.817**	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		**CERTIFIED**	

Customer: **Hallaton, Inc.**
PO: **P6762 (North Wake Landfill)**
Destination **Raleigh, NC.**

Date:..... **11-11-08**

Signature.....

Quality Control Department

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CoA Date: 04/02/2008

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

CPC Delivery #: 87624342
PO #: 004732
Weight: 184050 LB
Ship Date: 04/02/2008
Package: BULK
Mode: Hopper Car
Car #: PSPX006695
Seal No: 476026

Product: PE 7104 BULK

Cust # .

Lot Number: CXC811910

Property	Test Method	Value	Unit
Melt Index	ST-103	0.34	g/10mi
HLMI	ST-122	14.88	g/10mi
Pellet Count	ST-905	38	pel/g
Production date		20080331	
Density	ST-292	0.919	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Kay F. Donaldson
Quality Control Supervisor

For CoA questions contact Tom Scheirman at 832-813-4637

TRI / Environmental, Inc.
A Texas Research International Company

August 6, 2008

Mail To:

Mr. Kennedy Garber
Hallaton, Inc.

email: kgarber@hallaton.com

Bill To:

<= Same

Dear Mr. Garber:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**North Wake**
TRI Job Reference Number:	E2317-04-06
Material(s) Tested:	2 Agru 40 mil Microspike LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331445.08
TRI Log #: E2317-04-06

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	41	41	41	43	46	47	45	46	45	41	**44** **41**	2 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.932	0.933								**0.932**	0.001
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.28	2.25									**2.27**	0.02
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	2							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	73	72	72	81	83						**76**	5
TD Yield Strength (ppi)	83	86	77	74	81						**80**	5
MD Break Strength (ppi)	98	130	120	120	126						**119**	12
TD Break Strength (ppi)	148	116	105	100	134						**121**	20
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	17	17	17	17	17						**17**	0
MD Break Elongation (%)	373	455	426	430	476						**432**	39
TD Break Elongation (%)	619	498	518	515	614						**553**	59
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	89	91	85	87	86						**88**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	32	34	34	36	31	32	34	34	34	30	**33**	2
TD Tear Strength (lbs)	28	28	31	33	28	26	27	33	31	28	**29**	2

MD Machine Direction TD Transverse Direction

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331553.08
TRI Log #: E2317-04-06

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	41	42	42	42	46	46	46	46	42	42	**44**	2
											41	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.932	0.932								**0.932**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.31	2.31									**2.31**	0.00
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	2	2	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	72	79	81	73	72						**75**	4
TD Yield Strength (ppi)	80	78	82	89	94						**85**	7
MD Break Strength (ppi)	92	112	127	135	118						**117**	16
TD Break Strength (ppi)	100	85	122	129	121						**111**	18
MD Yield Elongation (%)	18	18	18	18	18						**18**	0
TD Yield Elongation (%)	18	18	18	18	18						**18**	0
MD Break Elongation (%)	349	366	439	354	460						**394**	52
TD Break Elongation (%)	465	396	560	559	495						**495**	69
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	90	91	89	90	87						**89**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	34	30	30	30	36	34	30	37	34	30	**33**	3
TD Tear Strength (lbs)	30	26	29	28	32	29	28	31	32	29	**29**	2

MD Machine Direction TD Transverse Direction

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

TRI / Environmental, Inc.
A Texas Research International Company

August 1, 2008

Mail To:

Mr. Kennedy Garber
Hallaton, Inc.

email: kgarber@hallaton.com

Bill To:

<= Same

Dear Mr. Garber:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**North Wake**
TRI Job Reference Number:	E2312-96-06
Material(s) Tested:	2 Agru 40 mil Microspike LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331101.08
TRI Log #: E2312-96-06

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	44	44	43	43	50	53	50	51	48	49	48 43	4 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.933	0.933	0.933								0.933	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.29	2.32									2.31	0.02
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	75	75	86	81	76						79	5
TD Yield Strength (ppi)	83	78	90	88	83						84	5
MD Break Strength (ppi)	128	145	125	118	143						132	12
TD Break Strength (ppi)	131	104	134	125	119						123	12
MD Yield Elongation (%)	20	20	20	20	20						20	0
TD Yield Elongation (%)	19	19	19	19	19						19	0
MD Break Elongation (%)	463	474	459	464	474						467	7
TD Break Elongation (%)	613	501	565	535	536						550	42
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	88	92	91	97	90						92	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	34	33	39	35	34	35	33	35	34	35	35	2
TD Tear Strength (lbs)	30	27	33	32	30	32	29	32	34	32	31	2

MD Machine Direction TD Transverse Direction

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331208.08
TRI Log #: E2312-96-06

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	49	49	45	43	52	53	51	50	45	46	**48** **43**	3 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.932	0.932								**0.932**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.31	2.32									**2.32**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	78	78	75	88	86						**81**	6
TD Yield Strength (ppi)	83	88	79	92	92						**87**	6
MD Break Strength (ppi)	154	168	143	136	138						**148**	13
TD Break Strength (ppi)	132	134	127	140	145						**136**	7
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	19	19	19	19	19						**19**	0
MD Break Elongation (%)	473	486	433	483	493						**473**	24
TD Break Elongation (%)	594	594	599	591	609						**597**	7
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	92	90	94	94	91						**92**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	34	36	37	31	36	34	32	34	37	32	**34**	2
TD Tear Strength (lbs)	29	31	33	28	29	31	30	32	29	30	**30**	2

MD Machine Direction TD Transverse Direction

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9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

TRI / Environmental, Inc.
A Texas Research International Company

August 7, 2008

Mail To:

Mr. Kennedy Garber
Hallaton, Inc.

email: kgarber@hallaton.com

Bill To:

<= Same

Dear Mr. Garber:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**North Wake**
TRI Job Reference Number:	E2317-09-08
Material(s) Tested:	2 Agru 40 mil Microspike LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 332115.08
TRI Log #: E2317-09-08

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	45	47	40	42	48	46	40	41	44	46	**44** **40**	3 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.933	0.933	0.933								**0.933**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.40	2.30									**2.35**	0.07
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	90	78	75	73	86						**80**	7
TD Yield Strength (ppi)	75	94	81	89	85						**85**	7
MD Break Strength (ppi)	134	144	130	155	117						**136**	14
TD Break Strength (ppi)	108	132	95	135	123						**119**	17
MD Yield Elongation (%)	22	22	22	22	22						**22**	0
TD Yield Elongation (%)	19	19	19	19	19						**19**	0
MD Break Elongation (%)	464	480	451	438	421						**451**	23
TD Break Elongation (%)	533	511	433	558	569						**521**	54
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	94	98	105	104	104						**101**	5
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	33	35	32	31	35	30	32	31	34	36	**33**	2
TD Tear Strength (lbs)	33	33	33	28	29	25	28	33	35	32	**31**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 332222.08
TRI Log #: E2317-09-08

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	40	41	44	42	41	43	47	45	46	45	**43** **40**	2 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.933	0.933	0.933								**0.933**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.37	2.34									**2.36**	0.02
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	73	80	86	82	91						**82**	7
TD Yield Strength (ppi)	81	83	92	87	79						**84**	5
MD Break Strength (ppi)	137	123	112	161	128						**132**	18
TD Break Strength (ppi)	119	109	137	127	122						**123**	10
MD Yield Elongation (%)	22	22	22	22	22						**22**	0
TD Yield Elongation (%)	18	18	18	18	18						**18**	0
MD Break Elongation (%)	458	453	390	431	429						**432**	27
TD Break Elongation (%)	543	508	558	548	609						**553**	37
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	93	89	90	90	87						**90**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	34	34	32	35	32	32	32	37	35	38	**34**	2
TD Tear Strength (lbs)	25	30	24	30	33	35	32	35	32	35	**31**	4

MD Machine Direction TD Transverse Direction

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TRI / Environmental, Inc.
A Texas Research International Company

August 5, 2008

Mail To:	**Bill To:**
Mr. Kennedy Garber **Hallaton, Inc.**	**<= Same**

email: kgarber@hallaton.com

Dear Mr. Garber:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**North Wake**
TRI Job Reference Number:	E2312-98-01
Material(s) Tested:	2 Agru 40 mil Microspike LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331216.08
TRI Log #: E2312-98-01

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	46	48	44	42	42	42	44	43	51	50	**45** **42**	3 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.933	0.933	0.933								**0.933**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.38	2.30									**2.34**	0.06
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	76	81	90	77	74						**80**	6
TD Yield Strength (ppi)	82	88	98	84	81						**87**	7
MD Break Strength (ppi)	122	124	146	140	119						**130**	12
TD Break Strength (ppi)	129	141	130	123	118						**128**	9
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	19	21	19	19	19						**19**	1
MD Break Elongation (%)	484	481	495	464	449						**475**	18
TD Break Elongation (%)	578	596	525	569	560						**566**	26
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	91	94	96	100	94						**95**	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	32	30	37	35	32	30	33	38	38	32	**34**	3
TD Tear Strength (lbs)	28	28	34	33	29	28	32	34	28	26	**30**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331323.08
TRI Log #: E2312-98-01

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	40	41	42	43	50	48	48	48	45	46	**45**	3
											40	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.933	0.933								**0.933**	0.001
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.23	2.24									**2.24**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	71	75	90	74	83						**79**	8
TD Yield Strength (ppi)	82	79	94	78	78						**82**	7
MD Break Strength (ppi)	126	129	134	134	128						**130**	4
TD Break Strength (ppi)	135	108	154	109	129						**127**	19
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	19	19	17	19	19						**19**	1
MD Break Elongation (%)	479	473	434	464	464						**463**	17
TD Break Elongation (%)	563	500	609	500	624						**559**	58
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	95	98	96	98	100						**97**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	32	33	35	40	30	30	35	31	34	37	**34**	3
TD Tear Strength (lbs)	28	33	27	35	27	29	33	30	33	27	**30**	3

MD Machine Direction TD Transverse Direction

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August 23, 2008

Mail To:	**Bill To:**
Mr. Kennedy Garber **Hallaton, Inc.**	**<= Same**

email: kgarber@hallaton.com

Dear Mr. Garber:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**North Wake**
TRI Job Reference Number:	E2317-35-02
Material(s) Tested:	6 Agru 40 mil Microspike LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 333562.08
TRI Log #: E2317-35-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	47	45	38	42	44	44	50	44	46	47	**45**	3
											38	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.932	0.932								**0.932**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.38	2.42									**2.40**	0.03
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	68	82	79	78	77						**77**	5
TD Yield Strength (ppi)	69	82	80	85	82						**80**	6
MD Break Strength (ppi)	119	140	122	124	133						**128**	9
TD Break Strength (ppi)	108	145	88	133	120						**119**	22
MD Yield Elongation (%)	21	21	21	21	21						**21**	0
TD Yield Elongation (%)	19	19	19	19	19						**19**	0
MD Break Elongation (%)	536	553	484	501	455						**506**	39
TD Break Elongation (%)	518	609	379	550	506						**512**	85
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	103	104	99	98	91						**99**	5
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	34	28	32	30	33	31	33	31	29	33	**31**	2
TD Tear Strength (lbs)	32	26	29	30	30	28	29	29	25	31	**29**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 333569.08
TRI Log #: E2317-35-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	40	41	39	38	40	43	43	44	43	44	42 38	2 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.932	0.932								0.932	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.53	2.47									2.50	0.04
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	77	73	81	70	77						76	4
TD Yield Strength (ppi)	73	78	73	83	75						76	4
MD Break Strength (ppi)	135	133	129	139	114						130	10
TD Break Strength (ppi)	126	121	110	96	133						117	15
MD Yield Elongation (%)	23	23	23	23	23						23	0
TD Yield Elongation (%)	18	18	18	18	18						18	0
MD Break Elongation (%)	476	420	524	454	443						463	39
TD Break Elongation (%)	601	531	526	393	610						532	87
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	93	89	86	87	91						89	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	32	30	29	31	36	32	30	29	33	30	31	2
TD Tear Strength (lbs)	30	29	27	27	29	29	29	29	28	29	29	1

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 333577.08
TRI Log #: E2317-35-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	42	38	40	42	46	45	43	44	43	45	**43** **38**	2 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.931	0.931	0.931								**0.931**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.39	2.38									**2.39**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	71	73	82	79	76						**76**	4
TD Yield Strength (ppi)	79	74	87	84	78						**80**	5
MD Break Strength (ppi)	115	123	151	114	118						**124**	15
TD Break Strength (ppi)	110	102	118	118	113						**112**	7
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	20	21	21	21	21						**21**	0
MD Break Elongation (%)	509	515	465	434	501						**485**	34
TD Break Elongation (%)	503	493	514	531	515						**511**	15
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	88	88	83	85	81						**85**	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	30	27	30	31	35	31	29	31	32	30	**31**	2
TD Tear Strength (lbs)	27	29	28	32	29	27	29	30	30	28	**29**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 333684.08
TRI Log #: E2317-35-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	45	39	39	38	43	42	46	45	45	45	**43**	3
											38	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.931	0.931	0.931								**0.931**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.42	2.45									**2.44**	0.02
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	72	79	74	67	72						**73**	4
TD Yield Strength (ppi)	75	72	84	81	76						**78**	5
MD Break Strength (ppi)	143	117	111	136	133						**128**	13
TD Break Strength (ppi)	120	112	124	98	135						**118**	14
MD Yield Elongation (%)	19	19	19	19	19						**19**	0
TD Yield Elongation (%)	18	18	18	18	18						**18**	0
MD Break Elongation (%)	489	453	488	468	493						**478**	17
TD Break Elongation (%)	530	546	510	423	601						**522**	65
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	93	94	88	90	89						**91**	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	32	29	29	31	35	31	30	27	31	30	**31**	2
TD Tear Strength (lbs)	28	27	27	31	26	28	25	28	31	30	**28**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 333791.08
TRI Log #: E2317-35-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	45	41	43	41	41	43	43	42	44	44	43 41	1 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.931	0.931	0.931								0.931	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.46	2.50									2.48	0.03
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	74	81	76	68	78						75	5
TD Yield Strength (ppi)	76	85	82	67	82						78	7
MD Break Strength (ppi)	111	127	140	101	132						122	16
TD Break Strength (ppi)	113	130	95	109	122						114	13
MD Yield Elongation (%)	20	20	20	20	20						20	0
TD Yield Elongation (%)	19	19	19	19	19						19	0
MD Break Elongation (%)	481	470	466	469	506						479	17
TD Break Elongation (%)	510	553	401	541	541						509	62
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	92	92	91	92	93						92	1
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	32	31	28	31	32	32	26	30	31	33	31	2
TD Tear Strength (lbs)	31	27	28	29	30	32	29	29	31	26	29	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 333799.08
TRI Log #: E2317-35-02

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	46	49	37	44	44	42	45	45	46	43	44 37	3 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.931	0.931	0.931								0.931	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.45	2.46									2.46	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	78	78	74	65	77						74	6
TD Yield Strength (ppi)	65	79	80	80	80						77	7
MD Break Strength (ppi)	130	120	148	106	139						129	16
TD Break Strength (ppi)	92	126	104	124	132						116	17
MD Yield Elongation (%)	19	19	19	19	19						19	0
TD Yield Elongation (%)	19	19	19	19	19						19	0
MD Break Elongation (%)	521	446	481	493	473						483	27
TD Break Elongation (%)	476	560	455	534	584						522	55
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	97	91	88	94	92						92	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	34	31	33	28	32	33	30	29	32	33	32	2
TD Tear Strength (lbs)	30	28	29	28	33	30	30	28	32	29	30	2

MD Machine Direction TD Transverse Direction

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TRI / Environmental, Inc.
A Texas Research International Company

August 8, 2008

Mail To:

Mr. Kennedy Garber
Hallaton, Inc.

email: kgarber@hallaton.com

Bill To:

<= Same

Dear Mr. Garber:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**North Wake**
TRI Job Reference Number:	E2317-07-05
Material(s) Tested:	6 Agru 40 mil Microspike LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331561.08
TRI Log #: E2317-07-05

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	42	45	41	40	43	40	43	44	46	47	**43** **40**	2 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.930	0.930	0.930								**0.930**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.36	2.36									**2.36**	0.00
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	76	89	78	91	82						**83**	7
TD Yield Strength (ppi)	77	89	83	93	85						**85**	6
MD Break Strength (ppi)	120	118	105	94	110						**109**	11
TD Break Strength (ppi)	109	128	106	136	112						**118**	13
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	21	22	20	21	21						**21**	1
MD Break Elongation (%)	443	426	379	241	421						**382**	82
TD Break Elongation (%)	511	525	490	561	501						**518**	28
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	112	112	110	108	108						**110**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	31	32	34	32	33	34	34	31	33	37	**33**	2
TD Tear Strength (lbs)	28	30	33	30	35	32	34	31	28	32	**31**	2

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331668.08
TRI Log #: E2317-07-05

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	39	38	44	42	45	41	48	47	48	45	44	4
											38	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.933	0.933	0.933								0.933	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.45	2.39									2.42	0.04
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	89	75	87	91	75						83	8
TD Yield Strength (ppi)	78	87	90	89	84						86	5
MD Break Strength (ppi)	127	114	104	114	135						119	12
TD Break Strength (ppi)	114	144	130	115	91						119	20
MD Yield Elongation (%)	20	20	20	20	20						20	0
TD Yield Elongation (%)	21	21	21	21	21						21	0
MD Break Elongation (%)	521	394	345	505	484						450	77
TD Break Elongation (%)	550	466	544	420	401						476	69
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	107	109	99	104	99						104	5
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	34	36	32	37	32	32	35	33	33	35	34	2
TD Tear Strength (lbs)	33	33	31	35	30	30	27	33	30	27	31	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331675.08
TRI Log #: E2317-07-05

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	49	47	40	42	42	42	44	43	45	46	**44** **40**	3 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.932	0.932								**0.932**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.28	2.29									**2.29**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	78	74	78	78	89						**79**	6
TD Yield Strength (ppi)	88	91	80	83	95						**87**	6
MD Break Strength (ppi)	89	119	114	115	125						**112**	14
TD Break Strength (ppi)	150	136	126	130	130						**134**	9
MD Yield Elongation (%)	21	21	21	21	21						**21**	0
TD Yield Elongation (%)	24	19	15	18	27						**21**	5
MD Break Elongation (%)	501	429	399	414	430						**435**	39
TD Break Elongation (%)	595	544	575	626	444						**557**	70
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	113	111	111	115	118						**114**	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	36	35	30	37	31	34	32	36	31	32	**33**	3
TD Tear Strength (lbs)	32	35	27	34	28	30	30	34	30	31	**31**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331783.08
TRI Log #: E2317-07-05

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	48	48	41	42	46	46	48	48	42	45	45	3
											41	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.932	0.932	0.932								0.932	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.42	2.41									2.42	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	79	73	75	92	81						80	7
TD Yield Strength (ppi)	91	85	78	96	85						87	7
MD Break Strength (ppi)	134	156	110	142	134						135	17
TD Break Strength (ppi)	149	135	117	140	132						135	12
MD Yield Elongation (%)	19	19	25	20	20						21	3
TD Yield Elongation (%)	20	15	20	19	19						19	2
MD Break Elongation (%)	470	454	416	453	489						456	27
TD Break Elongation (%)	601	623	563	570	578						587	25
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	107	105	104	103	100						104	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	35	38	31	37	32	31	33	35	31	34	34	3
TD Tear Strength (lbs)	32	33	30	35	31	28	27	31	28	26	30	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 331790.08
TRI Log #: E2317-07-05

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	39	39	47	46	41	41	47	42	47	46	**44**	3
											39	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.933	0.933	0.933								**0.933**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.36	2.36									**2.36**	0.00
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	68	76	92	88	83						**81**	10
TD Yield Strength (ppi)	97	98	83	83	91						**90**	7
MD Break Strength (ppi)	130	136	126	114	139						**129**	10
TD Break Strength (ppi)	139	150	113	113	103						**124**	20
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	18	18	18	18	18						**18**	0
MD Break Elongation (%)	434	481	449	404	463						**446**	29
TD Break Elongation (%)	571	588	534	566	451						**542**	54
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	100	100	96	103	95						**99**	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	33	37	33	36	37	31	31	36	31	31	**34**	3
TD Tear Strength (lbs)	33	40	30	35	30	27	27	33	29	28	**31**	4

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 332107.08
TRI Log #: E2317-07-05

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	43	42	49	50	49	47	43	46	44	42	**46** **42**	3 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.933	0.933	0.933								**0.933**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.38	2.41									**2.40**	0.02
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	89	88	86	79	79						**84**	5
TD Yield Strength (ppi)	74	89	95	82	82						**84**	8
MD Break Strength (ppi)	138	123	112	133	114						**124**	11
TD Break Strength (ppi)	129	146	156	146	119						**139**	15
MD Yield Elongation (%)	27	29	17	27	28						**26**	5
TD Yield Elongation (%)	26	25	20	25	18						**23**	4
MD Break Elongation (%)	481	421	500	444	445						**458**	32
TD Break Elongation (%)	600	588	609	475	583						**571**	55
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	111	109	105	103	102						**106**	4
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	32	31	29	32	31	38	36	32	35	36	**33**	3
TD Tear Strength (lbs)	30	31	26	28	28	34	31	29	32	33	**30**	2

MD Machine Direction TD Transverse Direction

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TRI / Environmental, Inc.
A Texas Research International Company

November 17, 2008

Mail To:	**Bill To:**
Mr. Kennedy Garber **Hallaton, Inc.**	**<= Same**

Em-ail: kgarber@hallaton.com

Dear Mr. Garber:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**North Wake**
TRI Job Reference Number:	E2320-71-10
Material(s) Tested:	3 Agru 40 mil Microspike LLDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 246318.08
TRI Log #: E2320-71-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	36	36	37	39	42	45	42	43	45	44	**41**	4
											36	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.931	0.931	0.931								**0.931**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.65	2.63									**2.64**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	67	62	64	65	73						**66**	4
TD Yield Strength (ppi)	71	83	71	70	78						**75**	6
MD Break Strength (ppi)	156	140	125	119	153						**139**	16
TD Break Strength (ppi)	116	147	119	120	119						**124**	13
MD Yield Elongation (%)	20	20	20	20	20						**20**	0
TD Yield Elongation (%)	19	17	17	19	17						**18**	1
MD Break Elongation (%)	480	466	543	490	503						**496**	29
TD Break Elongation (%)	543	624	583	574	539						**572**	35
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	95	87	87	86	90						**89**	4
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	29	27	34	29	25	27	32	28	27	27	**29**	3
TD Tear Strength (lbs)	26	24	35	28	24	25	30	28	26	26	**27**	3

MD Machine Direction TD Transverse Direction

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GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 246325.08
TRI Log #: E2320-71-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	40	41	38	36	42	39	44	47	38	42	41	3
											36	<< min
Density (ASTM D 1505)												
Density (g/cm3)	0.930	0.930	0.930								0.930	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.65	2.69									2.67	0.03
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	2	1	1	1							
Rating - 2nd field view	1	1	1	1	1							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	76	66	82	67	73						73	7
TD Yield Strength (ppi)	83	75	69	68	85						76	8
MD Break Strength (ppi)	169	113	159	125	157						145	24
TD Break Strength (ppi)	156	127	119	105	145						130	20
MD Yield Elongation (%)	19	19	19	19	19						19	0
TD Yield Elongation (%)	22	22	22	22	22						22	0
MD Break Elongation (%)	499	521	523	509	504						511	11
TD Break Elongation (%)	660	569	579	524	588						584	49
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	89	90	86	88	87						88	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	27	27	33	32	29	26	32	33	29	25	29	3
TD Tear Strength (lbs)	26	24	28	30	26	27	28	33	26	26	27	3

MD Machine Direction TD Transverse Direction

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GEOMEMBRANE TEST RESULTS

TRI Client: Hallaton, Inc.
Project: North Wake

Material: Agru 40 mil Microspike LLDPE Geomembrane
Sample Identification: 246330.08
TRI Log #: E2320-71-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	37	38	40	41	46	42	37	36	38	44	**40** **36**	3 << min
Density (ASTM D 1505)												
Density (g/cm3)	0.931	0.931	0.931								**0.931**	0.000
Carbon Black Content (ASTM D 4218)												
% Carbon Black	2.64	2.65									**2.65**	0.01
Carbon Black Dispersion (ASTM D 5596)												
Rating - 1st field view	1	1	1	2	1							
Rating - 2nd field view	1	1	1	1	2							
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	67	68	76	71	72						**71**	4
TD Yield Strength (ppi)	67	67	73	74	84						**73**	7
MD Break Strength (ppi)	118	109	152	127	145						**130**	18
TD Break Strength (ppi)	100	112	128	135	140						**123**	17
MD Yield Elongation (%)	19	19	19	19	19						**19**	0
TD Yield Elongation (%)	17	17	17	17	17						**17**	0
MD Break Elongation (%)	530	478	434	534	480						**491**	42
TD Break Elongation (%)	500	546	594	625	593						**572**	49
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	98	97	92	92	91						**94**	3
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	28	26	31	29	29	29	26	31	30	27	**29**	2
TD Tear Strength (lbs)	24	25	30	26	27	27	26	28	26	27	**27**	2

MD Machine Direction TD Transverse Direction

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TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

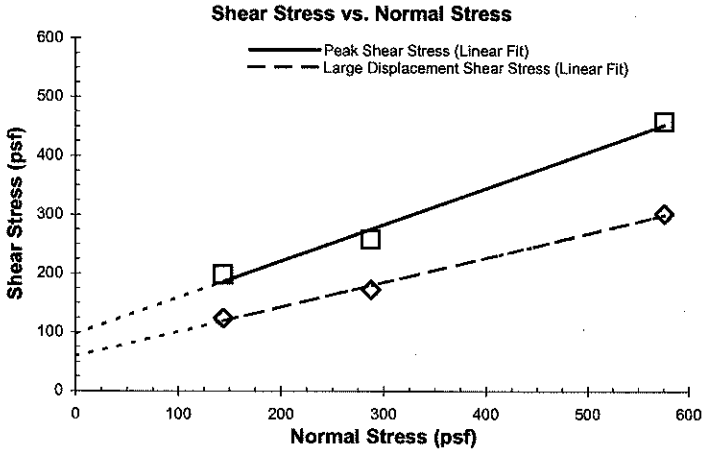
Interface Friction Test Report

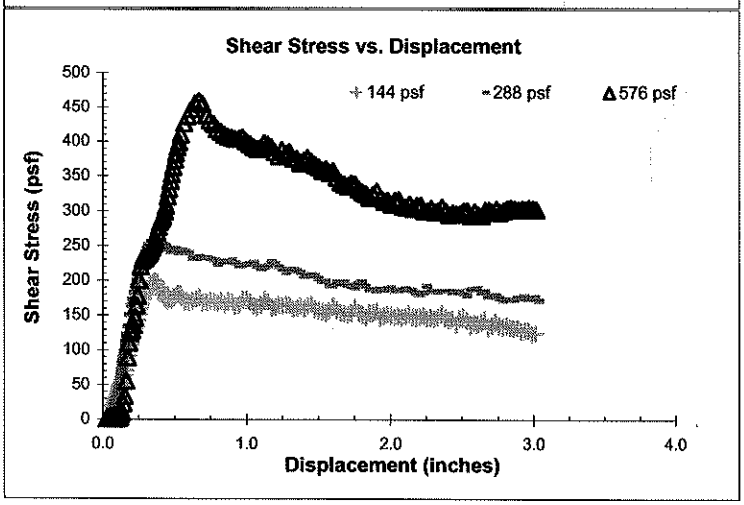
Client: **Hallaton**
Project: **North Wake Landfill**
Test Date: 08/12/08-08/12/08

TRI Log#: E2308-48-10
Test Method: ASTM D 5321

John M. Allen, E.I.T., 08/12/2008
Quality Review/Date

Tested Interface: Skaps TN330-2-8 Double-sided Geocomposite (282710002) vs. Agru 40 mil LLDPE Microspike Geomembrane (331101.08)





Test Results		
	Peak	**Large Displacement (@ 3.0 in.)**
Friction Angle (degrees):	**31.7**	**22.7**
Y-intercept or Adhesion (psf):	**97**	**59**

Test Conditions

Upper Box &	Skaps TN220-2-8 double-sided geocomposite
Lower Box	Agru 40 mil LLDPE Microspike geomembrane

Box Dimensions: 12"x12"x4"

Interface Conditioning: Interface loading applied for a minimum of 1hour prior to shear.

Test Condition: Dry

Shearing Rate: 0.2 inches/minute

Test Data

Specimen No.	1	2	3
Bearing Slide Resistance (lbs)	9	11	13
Normal Stress (psf)	144	288	576
Corrected Peak Shear Stress (psf)	198	258	459
Corrected Large Displacement Shear Stress (psf)	124	172	302
Peak Secant Angle (degrees)	53.9	41.8	38.5
Large Displacement Secant Angle (degrees)	40.7	30.8	27.7
Asperity (mils)	28.8	29.0	28.8

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9063 Bee Caves Road □ Austin, TX 78733-6201 □ (512) 263-2101 □ (512) 263-2558 □ 1-800-880-TEST

APPENDIX B-9

LLDPE Liner Installation Tracking Log (CQC – 105)

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
8/13/2008	P-1	331672-08	402	22.5	9,045
8/13/2008	P-2	331672-08	177	22.5	3,983
8/13/2008	P-3	331668-08	225	22.5	5,063
8/13/2008	P-4	331668-08	361	22.5	8,123
8/13/2008	P-5	331669-08	40	22.5	900
8/13/2008	P-6	331669-08	402	22.5	9,045
8/13/2008	P-7	331669-08	145	22.5	3,263
8/13/2008	P-8	331564-08	265	22.5	5,963
8/13/2008	P-9	331564-08	325	22.5	7,313
8/13/2008	P-10	331671-08	84	22.5	1,890

Daily Total 54,585 **sq ft** 1.25 **acres**

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
8/14/2008	P-11	331671-08	400	22.5	9,000
8/14/2008	P-12	331671-08	98	22.5	2,205
8/14/2008	P-13	331565-08	304	22.5	6,840
8/14/2008	P-14	331565-08	288	22.5	6,480
8/14/2008	P-15	331563-08	107	22.5	2,408
8/14/2008	P-16	331563-08	394	22.5	8,865
8/14/2008	P-17	332220-08	250	22.5	5,625
8/14/2008	P-18	331563-08	90	22.5	2,025
8/14/2008	P-19	332220-08	205	22.5	4,613
8/14/2008	P-20	332220-08	85	22.5	1,913
8/14/2008	P-21	332220-08	35	7	245
8/14/2008	P-22	331666-08	392	22.5	8,820
8/14/2008	P-23	331666-08	200	22.5	4,500
8/14/2008	P-24	331562-08	190	22.5	4,275
8/14/2008	P-25	331562-08	393	22.5	8,843

Daily Total 76,655 **sq ft** 1.76 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
8/16/2008	P-26	332114-08	380	22.5	8,550
8/16/2008	P-27	332114-08	205	22.5	4,613
8/16/2008	P-28	332221-08	170	22.5	3,825
8/16/2008	P-29	332221-08	353	22.5	7,943
8/16/2008	P-30	332221-08	66	22.5	1,485
8/16/2008	P-31	332216-08	276	22.5	6,210
8/16/2008	P-32	332216-08	318	22.5	7,155
8/16/2008	P-33	331561-08	300	22.5	6,750
8/16/2008	P-34	331561-08	280	22.5	6,300
8/16/2008	P-35	332109-08	265	22.5	5,963
8/16/2008	P-36	332109-08	253	22.5	5,693
8/16/2008	P-37	332109-08	93	22.5	2,093
8/16/2008	P-38	332115-08	146	22.5	3,285
8/16/2008	P-39	332115-08	220	22.5	4,950
8/16/2008	P-40	332115-08	200	22.5	4,500
8/16/2008	P-41	332115-08	43	22.5	968
8/16/2008	P-42	332112-08	136	22.5	3,060
8/16/2008	P-43	332112-08	163	22.5	3,668
8/16/2008	P-44	332112-08	143	22.5	3,218
8/16/2008	P-45	332112-08	121	22.5	2,723
8/16/2008	P-46	332110-08	100	22.5	2,250
8/16/2008	P-47	332110-08	83	22.5	1,868
8/16/2008	P-48	332110-08	56	22.5	1,260
8/16/2008	P-49	332112-08	40	22.5	900
8/16/2008	P-50	332110-08	26	22.5	585
8/16/2008	P-51	332110-08	16	10	160
8/16/2008	P-52	3321103-08	26	14	364
8/16/2008	P-53	332110-08	38	22.5	855
8/16/2008	P-54	332110-08	64	22.5	1,440
8/16/2008	P-55	332110-08	81	22.5	1,823
8/16/2008	P-56	332110-08	84	22.5	1,890
8/16/2008	P-57	331102-08	18	22.5	405

Daily Total 106,747 **sq ft** 2.45 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
8/19/2008	P-58	331102-08	129	22.5	2,903
8/19/2008	P-59	331102-08	146	22.5	3,285
8/19/2008	P-60	331102-08	162	22.5	3,645
8/19/2008	P-61	331102-08	118	22.5	2,655
8/19/2008	P-62	332113-08	50	22.5	1,125
8/19/2008	P-63	332113-08	192	22.5	4,320
8/19/2008	P-64	332113-08	178	22.5	4,005
8/19/2008	P-65	332113-08	22	22.5	495
8/19/2008	P-66	332113-08	122	22.5	2,745
8/19/2008	P-67	331560-08	112	22.5	2,520
8/19/2008	P-68	331560-08	250	22.5	5,625
8/19/2008	P-69	331560-08	232	22.5	5,220
8/19/2008	P-70	331567-08	40	22.5	900
8/19/2008	P-71	331667-08	296	22.5	6,660
8/19/2008	P-72	331667-08	246	22.5	5,535
8/19/2008	P-73	331105-08	62	22.5	1,395
8/19/2008	P-74	331105-08	340	22.5	7,650
8/19/2008	P-75	331105-08	187	22.5	4,208
8/19/2008	P-76	331790-08	160	22.5	3,600
8/19/2008	P-77	331790-08	383	22.5	8,618

Daily Total 77,108 **sq ft** 1.77 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
8/22/2008	P-78	332218-08	391	22.5	8,798
8/22/2008	P-79	332218-08	191	22.5	4,298
8/22/2008	P-80	332219-08	206	22.5	4,635
8/22/2008	P-81	332219-08	384	22.5	8,640
8/22/2008	P-82	331103-08	20	22.5	450
8/22/2008	P-83	331103-08	404	22.5	9,090
8/22/2008	P-84	331103-08	160	22.5	3,600
8/22/2008	P-85	332222-08	240	22.5	5,400
8/22/2008	P-86	332217-08	360	22.5	8,100
8/22/2008	P-87	332217-08	164	22.5	3,690
8/22/2008	P-88	332217-08	92	9	828
8/22/2008	P-89	332217-08	80	9	720
8/22/2008	P-90	332222-08	347	22.5	7,808
8/22/2008	P-91	331107-08	51	22.5	1,148
8/22/2008	P-92	331107-08	405	22.5	9,113
8/22/2008	P-93	331107-08	299	22.5	6,728
8/22/2008	P-94	332111-08	276	22.5	6,210
8/22/2008	P-95	332111-08	317	22.5	7,133
8/22/2008	P-96	331106-08	77	22.5	1,733
8/22/2008	P-97	331106-08	397	22.5	8,933
8/22/2008	P-98	331106-08	111	22.5	2,498
8/22/2008	P-99	331104-08	280	22.5	6,300
8/22/2008	P-100	331104-08	306	22.5	6,885
8/22/2008	P-101	331101-08	76	22.5	1,710
8/22/2008	P-102	331101-08	394	22.5	8,865
8/22/2008	P-103	331101-08	114	22.5	2,565
8/22/2008	P-104	331214-08	270	22.5	6,075
8/22/2008	P-105	331214-08	323	22.5	7,268
8/22/2008	P-106	331208-08	60	22.5	1,350
8/22/2008	P-107	331208-08	379	22.5	8,528
8/22/2008	P-108	331212-08	382	22.5	8,595

Daily Total 167,688 **sq ft** 3.85 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
9/4/2008	P-109	331212-08	213	22.5	4,793
9/4/2008	P-110	331208-08	144	22.5	3,240
9/4/2008	P-111	331447-08	19	22.5	428
9/4/2008	P-112	331447-08	380	22.5	8,550
9/4/2008	P-113	331447-08	183	22.5	4,118
9/4/2008	P-114	331210-08	197	22.5	4,433
9/4/2008	P-115	331210-08	383	22.5	8,618
9/4/2008	P-116	331209-08	384	22.5	8,640
9/4/2008	P-117	331209-08	212	22.5	4,770
9/4/2008	P-118	331786-08	177	22.5	3,983
9/4/2008	P-119	331786-08	390	22.5	8,775
9/4/2008	P-120	331785-08	394	22.5	8,865

Daily Total 69,210 **sq ft** 1.59 **acres**

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
10/2/2008	P-121	331670-08	385	22.5	8,663
10/2/2008	P-122	331670-08	184	22.5	4,140
10/2/2008	P-123	331781-08	270	22.5	6,075
10/2/2008	P-124	331781-08	314	22.5	7,065
10/2/2008	P-125	333685-08	76	22.5	1,710
10/2/2008	P-126	333685-08	334	22.5	7,515
10/2/2008	P-127	333685-08	159	22.5	3,578
10/2/2008	P-128	333569-08	136	22.5	3,060
10/2/2008	P-129	333569-08	242	22.5	5,445
10/2/2008	P-130	333569-08	38	22.5	855
10/2/2008	P-131	333569-08	154	22.5	3,465
10/2/2008	P-132	333789-08	144	22.5	3,240
10/2/2008	P-133	333789-08	100	22.5	2,250
10/2/2008	P-134	333789-08	50	22.5	1,125
10/2/2008	P-135	333789-08	31	10	310
10/2/2008	P-136	333789-08	152	22.5	3,420
10/2/2008	P-137	333789-08	43	22.5	968
10/2/2008	P-138	333789-08	53	22.5	1,193
10/2/2008	P-139	333789-08	45	12	540
10/2/2008	P-140	333789-08	39	22.5	878
10/2/2008	P-141	333681-08	189	22.5	4,253
10/2/2008	P-142	333681-08	240	22.5	5,400
10/2/2008	P-143	333681-08	64	18	1,152
10/2/2008	P-144	333681-08	150	22.5	3,375
10/2/2008	P-145	333700-08	200	22.5	4,500
10/2/2008	P-146	333700-08	59	14	826
10/2/2008	P-147	333700-08	376	22.5	8,460
10/2/2008	P-148	333798-08	455	22.5	10,238
10/2/2008	P-149	333798-08	146	22.5	3,285
10/2/2008	P-150	333791-08	277	22.5	6,233
10/2/2008	P-151	333791-08	306	22.5	6,885
10/2/2008	P-152	333795-08	89	22.5	2,003
10/2/2008	P-153	333795-08	378	22.5	8,505

Daily Total 130,606 **sq ft** 3.00 **acres**

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Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
10/4/2008	P-154	333795-08	112	22.5	2,520
10/4/2008	P-155	332101-08	255	22.5	5,738
10/4/2008	P-156	332101-08	331	22.5	7,448
10/4/2008	P-157	334101-08	22	8	176
10/4/2008	P-158	334101-08	345	22.5	7,763
10/4/2008	P-159	334101-08	239	22.5	5,378
10/4/2008	P-160	333796-08	91	22.5	2,048
10/4/2008	P-161	333796-08	315	22.5	7,088
10/4/2008	P-162	333796-08	175	22.5	3,938
10/4/2008	P-163	332108-08	129	22.5	2,903
10/4/2008	P-164	332108-08	302	22.5	6,795
10/4/2008	P-165	332108-08	159	22.5	3,578
10/4/2008	P-166	333683-08	128	22.5	2,880
10/4/2008	P-167	333683-08	277	22.5	6,233
10/4/2008	P-168	333683-08	48	22.5	1,080
10/4/2008	P-169	333683-08	65	22.5	1,463
10/4/2008	P-170	333683-08	75	22.5	1,688
10/4/2008	P-171	333799-08	84	22.5	1,890
10/4/2008	P-172	333799-08	96	22.5	2,160
10/4/2008	P-173	333799-08	100	22.5	2,250
10/4/2008	P-174	333799-08	24	3	72
10/4/2008	P-175	333799-08	102	22.5	2,295
10/4/2008	P-176	333799-08	104	22.5	2,340
10/4/2008	P-177	333799-08	78	22.5	1,755
10/4/2008	P-178	332103-08	31	22.5	698
10/4/2008	P-179	332103-08	110	22.5	2,475
10/4/2008	P-180	332103-08	116	22.5	2,610
10/4/2008	P-181	332103-08	120	22.5	2,700

Daily Total 89,956 **sq ft** 2.07 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
10/7/2008	P-182	332103-08	122	22.5	2,745
10/7/2008	P-183	331558-08	383	22.5	8,618
10/7/2008	P-184	331558-08	208	22.5	4,680
10/7/2008	P-185	331678-08	170	22.5	3,825
10/7/2008	P-186	331678-08	367	22.5	8,258
10/7/2008	P-187	331678-08	58	22.5	1,305
10/7/2008	P-188	331440-08	300	22.5	6,750
10/7/2008	P-189	331440-08	294	22.5	6,615
10/7/2008	P-190	331218-08	53	22.5	1,193
10/7/2008	P-191	331218-08	330	22.5	7,425
10/7/2008	P-192	331218-08	200	22.5	4,500
10/7/2008	P-193	331785-08	128	22.5	2,880
10/7/2008	P-194	331675-08	316	22.5	7,110
10/7/2008	P-195	331675-08	285	22.5	6,413
10/7/2008	P-196	331785-08	20	22.5	450
10/7/2008	P-197	331216-08	300	22.5	6,750
10/7/2008	P-198	331216-08	289	22.5	6,503
10/7/2008	P-199	331442-08	280	22.5	6,300
10/7/2008	P-200	331442-08	271	22.5	6,098
10/7/2008	P-201	331442-08	45	22.5	1,013
10/7/2008	P-202	331220-08	214	22.5	4,815
10/7/2008	P-203	331220-08	249	22.5	5,603
10/7/2008	P-204	331220-08	126	22.5	2,835
10/7/2008	P-205	333104-08	115	22.5	2,588
10/7/2008	P-206	333104-08	234	22.5	5,265
10/7/2008	P-207	333104-08	225	22.5	5,063

Daily Total 125,595 **sq ft** 2.88 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
10/15/2008	P-208	331444-08	219	22.5	4,928
10/15/2008	P-209	331444-08	218	22.5	4,905
10/15/2008	P-210	331444-08	144	22.5	3,240
10/15/2008	P-211	331323-08	30	22.5	675
10/15/2008	P-212	331323-08	170	22.5	3,825
10/15/2008	P-213	331323-08	165	22.5	3,713
10/15/2008	P-214	331323-08	145	22.5	3,263
10/15/2008	P-215	331323-08	77	22.5	1,733
10/15/2008	P-216	331439-08	68	22.5	1,530
10/15/2008	P-217	331439-08	125	22.5	2,813
10/15/2008	P-218	331439-08	125	22.5	2,813
10/15/2008	P-219	331439-08	243	22.5	5,468
10/15/2008	P-220	331557-08	240	22.5	5,400
10/15/2008	P-221	331557-08	224	22.5	5,040
10/15/2008	P-222	331557-08	117	22.5	2,633
10/15/2008	P-223	331441-08	102	22.5	2,295
10/15/2008	P-224	331557-08	105	22.5	2,363
10/15/2008	P-225	331557-08	85	22.5	1,913
10/15/2008	P-226	331557-08	60	22.5	1,350
10/15/2008	P-227	331557-08	37	22.5	833
10/15/2008	P-228	331557-08	22	22.5	495
10/15/2008	P-229	331557-08	109	22.5	2,453
10/15/2008	P-230	331559-08	157	22.5	3,533
10/15/2008	P-231	331559-08	139	22.5	3,128
10/15/2008	P-232	331559-08	87	22.5	1,958
10/15/2008	P-233	331559-08	145	22.5	3,263
10/15/2008	P-234	331559-08	28	22.5	630
10/15/2008	P-235	331438-08	43	22.5	968
10/15/2008	P-236	331438-08	43	11	473
10/15/2008	P-237	331438-08	43	11	473
10/15/2008	P-238	331438-08	169	22.5	3,803
10/15/2008	P-239	331438-08	89	22.5	2,003
10/15/2008	P-240	331438-08	27	22.5	608
10/15/2008	P-241	331438-08	24	22.5	540
10/15/2008	P-242	331559-08	32	12	384
10/15/2008	P-243	331438-08	125	22.5	2,813
10/15/2008	P-244	331446-08	163	22.5	3,668
10/15/2008	P-245	331446-08	170	22.5	3,825
10/15/2008	P-246	331446-08	184	22.5	4,140
10/15/2008	P-247	331446-08	60	22.5	1,350
10/15/2008	P-248	331673-08	134	22.5	3,015
10/15/2008	P-249	331673-08	212	22.5	4,770
10/15/2008	P-250	331673-08	221	22.5	4,973
10/15/2008	P-251	331673-08	22	22.5	495
10/15/2008	P-252	331551-08	215	22.5	4,838
10/15/2008	P-253	331551-08	247	22.5	5,558
10/15/2008	P-254	331445-08	180	22.5	4,050
10/15/2008	P-255	331445-08	100	11	1,100
	Daily Total	**130,028**	**sq ft**	**2.99**	**acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
11/6/2008	P-256	331211-08	481	22.5	10,823
11/6/2008	P-257	331211-08	101	22.5	2,273
11/6/2008	P-258	331213-08	195	22.5	4,388
11/6/2008	P-259	331213-08	344	22.5	7,740
11/6/2008	P-260	331213-08	44	22.5	990
11/6/2008	P-261	331780-08	329	22.5	7,403
11/6/2008	P-262	331780-08	263	22.5	5,918
11/6/2008	P-263	331783-08	156	22.5	3,510
11/6/2008	P-264	331783-08	49	22.5	1,103
11/6/2008	P-265	331783-08	322	22.5	7,245
11/6/2008	P-266	331783-08	63	22.5	1,418
11/6/2008	P-267	331782-08	256	22.5	5,760
11/6/2008	P-268	331782-08	55	22.5	1,238
11/6/2008	P-269	331782-08	221	22.5	4,973
11/6/2008	P-270	331782-08	63	10	630
11/6/2008	P-271	332105-08	151	22.5	3,398
11/6/2008	P-272	331782-08	47	22.5	1,058
11/6/2008	P-273	332105-08	120	22.5	2,700
11/6/2008	P-274	332105-08	107	12	1,284
11/6/2008	P-275	332105-08	56	22.5	1,260
11/6/2008	P-276	332113-08	25	12	300
11/6/2008	P-277	332105-08	103	22.5	2,318
11/6/2008	P-278	331221-08	288	22.5	6,480
11/6/2008	P-279	331221-08	22	22.5	495
11/6/2008	P-280	331322-08	28	22.5	630
11/6/2008	P-281	331221-08	282	22.5	6,345
11/6/2008	P-282	331322-08	291	22.5	6,548
11/6/2008	P-283	331322-08	231	22.5	5,198
11/6/2008	P-284	331322-08	23	22.5	518
11/6/2008	P-285	333671-08	168	22.5	3,780
11/6/2008	P-286	333671-08	137	22.5	3,083
11/6/2008	P-287	333671-08	25	22.5	563
11/6/2008	P-288	333671-08	57	22.5	1,283
11/6/2008	P-289	333671-08	24	22.5	540
11/6/2008	P-290	333671-08	18	22.5	405

Daily Total 113,589 **sq ft** 2.61 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
11/7/2008	P-291	333682-08	73	22.5	1,643
11/7/2008	P-292	333671-08	152	22.5	3,420
11/7/2008	P-293	333671-08	21	5	105
11/7/2008	P-294	333671-08	192	22.5	4,320
11/7/2008	P-295	333671-08	43	22.5	968
11/7/2008	P-296	333671-08	275	22.5	6,188
11/7/2008	P-297	331789-08	43	22.5	968
11/7/2008	P-298	331789-08	356	22.5	8,010
11/7/2008	P-299	331789-08	32	22.5	720
11/7/2008	P-300	331789-08	153	22.5	3,443
11/7/2008	P-301	332107-08	305	22.5	6,863
11/7/2008	P-302	332107-08	244	22.5	5,490
11/7/2008	P-303	333568-08	253	22.5	5,693
11/7/2008	P-304	333568-08	340	22.5	7,650
11/7/2008	P-305	332107-08	44	22.5	990
11/7/2008	P-306	331445-08	275	22.5	6,188
11/7/2008	P-307	332106-08	545	22.5	12,263
11/7/2008	P-308	332106-08	50	22.5	1,125
11/7/2008	P-309	333787-08	387	22.5	8,708
11/7/2008	P-310	333787-08	210	22.5	4,725
11/7/2008	P-311	333562-08	105	22.5	2,363
11/7/2008	P-312	333562-08	55	22.5	1,238
11/7/2008	P-313	333562-08	143	22.5	3,218
11/7/2008	P-314	333562-08	88	22.5	1,980
11/7/2008	P-315	333562-08	34	5	170
11/7/2008	P-316	333566-08	594	22.5	13,365
11/7/2008	P-317	333570-08	594	22.5	13,365
11/7/2008	P-318	333797-08	594	22.5	13,365
11/7/2008	P-319	333561-08	594	22.5	13,365
11/7/2008	P-320	333680-08	594	22.5	13,365
11/7/2008	P-321	331788-08	594	22.5	13,365

Daily Total 178,633 **sq ft** 4.10 **acres**

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
11/7/2008	P-322	331554-08	594	22.5	13,365
11/7/2008	P-323	333564-08	594	22.5	13,365
11/7/2008	P-324	336332-08	594	22.5	13,365
11/7/2008	P-325	333679-08	594	22.5	13,365
11/7/2008	P-326	333565-08	594	22.5	13,365
11/7/2008	P-327	333563-08	594	22.5	13,365
11/7/2008	P-328	333794-08	594	22.5	13,365
11/7/2008	P-329	333676-08	594	22.5	13,365
11/7/2008	P-330	333790-08	594	22.5	13,365
11/7/2008	P-331	333674-08	594	22.5	13,365
11/7/2008	P-332	333678-08	511	22.5	11,498
11/7/2008	P-333	333678-08	35	7	245
11/7/2008	P-334	333678-08	39	22.5	878
11/7/2008	P-335	331787-08	396	22.5	8,910
11/7/2008	P-336	331787-08	137	22.5	3,083
11/7/2008	P-337	331787-08	46	22.5	1,035
11/7/2008	P-338	333675-08	220	22.5	4,950
11/7/2008	P-339	333675-08	225	22.5	5,063
11/7/2008	P-340	333675-08	100	22.5	2,250
11/7/2008	P-341	333675-08	39	22.5	878
11/7/2008	P-342	333556-08	73	22.5	1,643
11/7/2008	P-343	333556-08	50	22.5	1,125
11/7/2008	P-344	333678-08	50	9	450
11/7/2008	P-345	333556-08	447	22.5	10,058
11/7/2008	P-346	333786-08	140	22.5	3,150
11/7/2008	P-347	333786-08	450	22.5	10,125
11/7/2008	P-348	333562-08	135	22.5	3,038

Daily Total 202,025 **sq ft** 4.64 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
1/30/2009	P-349	331672-08	287	22.5	6,458
1/30/2009	P-350	331672-08	270	22.5	6,075
1/30/2009	P-351	331217-08	253	22.5	5,693
1/30/2009	P-352	331217-08	246	22.5	5,535
1/30/2009	P-353	331217-08	60	22.5	1,350
1/30/2009	P-354	331448-08	183	22.5	4,118
1/30/2009	P-355	331448-08	235	22.5	5,288
1/30/2009	P-356	331448-08	158	22.5	3,555
1/30/2009	P-357	333672-08	75	22.5	1,688
1/30/2009	P-358	333672-08	224	22.5	5,040
1/30/2009	P-359	333672-08	220	22.5	4,950
1/30/2009	P-360	333672-08	60	22.5	1,350
1/30/2009	P-361	246331-08	157	22.5	3,533
1/30/2009	P-362	246331-08	208	22.5	4,680
1/30/2009	P-363	246331-08	200	22.5	4,500
1/30/2009	P-364	246322-08	188	22.5	4,230

Daily Total 68,040 **sq ft** 1.56 **acres**

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
1/31/2009	P-365	246322-08	187	22.5	4,208
1/31/2009	P-366	246322-08	181	22.5	4,073
1/31/2009	P-367	246322-08	37	22.5	833
1/31/2009	P-368	246324-08	144	22.5	3,240
1/31/2009	P-369	246324-08	160	22.5	3,600
1/31/2009	P-370	246324-08	157	22.5	3,533
1/31/2009	P-371	246324-08	130	22.5	2,925
1/31/2009	P-372	333788-08	27	22.5	608
1/31/2009	P-373	333788-08	136	22.5	3,060
1/31/2009	P-374	246331-08	16	22.5	360
1/31/2009	P-375	243788-08	138	22.5	3,105

Daily Total 29,543 **sq ft** 0.68 **acres**

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
2/2/2009	P-376	333673-08	590	22.5	13,275
2/2/2009	P-377	246326-08	563	22.5	12,668
2/2/2009	P-378	246333-08	550	22.5	12,375
2/2/2009	P-379	246325-08	537	22.5	12,083
2/2/2009	P-380	246321-08	522	22.5	11,745

Daily Total 62,145 **sq ft** 1.43 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
2/6/2009	P-381	333567-08	512	22.5	11,520
2/6/2009	P-382	246318-08	491	22.5	11,048
2/6/2009	P-383	333677-08	474	22.5	10,665
2/6/2009	P-384	333557-08	467	22.5	10,508
2/6/2009	P-385	331553-08	456	22.5	10,260
2/6/2009	P-386	246318-08	439	22.5	9,878
2/6/2009	P-387	246318-08	175	22.5	3,938
2/6/2009	P-388	331553-08	127	22.5	2,858
2/6/2009	P-389	331557-08	114	22.5	2,565
2/6/2009	P-390	331550-08	15	22.5	338
2/6/2009	P-391	331550-08	418	22.5	9,405
2/6/2009	P-392	331550-08	47	22.5	1,058
2/6/2009	P-393	331550-08	405	22.5	9,113
2/6/2009	P-394	331549-08	171	22.5	3,848
2/6/2009	P-395	331549-08	214	22.5	4,815
2/6/2009	P-396	331674-08	357	22.5	8,033
2/6/2009	P-397	331674-08	22	22.5	495
2/6/2009	P-398	246929-08	368	22.5	8,280

Daily Total 118,620 **sq ft** 2.72 **acres**

CDM

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
2/7/2009	P-399	246329-08	201	22.5	4,523
2/7/2009	P-400	246323-08	163	22.5	3,668
2/7/2009	P-401	246323-08	341	22.5	7,673
2/7/2009	P-402	246323-08	79	22.5	1,778
2/7/2009	P-403	331550-08	250	22.5	5,625
2/7/2009	P-404	331550-08	114	22.5	2,565
2/7/2009	P-405	333558-08	198	22.5	4,455
2/7/2009	P-406	333558-08	305	22.5	6,863
2/7/2009	P-407	333558-08	68	22.5	1,530
2/7/2009	P-408	331219-08	287	22.5	6,458
2/7/2009	P-409	331219-08	273	22.5	6,143
2/7/2009	P-410	331219-08	72	22.5	1,620
2/7/2009	P-411	331555-08	104	22.5	2,340
2/7/2009	P-412	331555-08	245	22.5	5,513
2/7/2009	P-413	331555-08	20	22.5	450
2/7/2009	P-414	331555-08	45	9	405

Daily Total 61,605 **sq ft** 1.41 **acres**

Form CQC 105
Liner Installation Tracking Log

Date	Panel No.	Roll No.	Length	Width	Square Ft.
2/20/2009	P-415	246330-08	146	22.5	3,285
2/20/2009	P-416	246330-08	143	22.5	3,218
2/20/2009	P-417	246330-08	137	22.5	3,083
2/20/2009	P-418	246330-08	36	22.5	810
2/20/2009	P-419	246330-08	37	22.5	833
2/20/2009	P-420	246330-08	43	11	473
2/20/2009	P-421	246330-08	43	11	473

Daily Total 12,174 **sq ft** 0.28 **acres**

CDM

APPENDIX B-10

LLDPE Liner Pre-weld Testing (CQC-104)

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 1 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
1	8/13/2008	11:00	75	22	M.R.	750/750		86 87	89 88	87 86			89	88	87			P	E.R.	SM/SM
2	8/13/2008	11:15	75	19	C.L.	750/750		87 87	86 89	89 87			87	94	87			P	E.R.	SM/SM
3	8/14/2008	8:00	70	22	M.R.	750/750		88 87	88 89	87 88			90	89	88			P	E.R.	SM/SM
4	8/14/2008	8:10	70	19	C.L.	750/750		87 86	88 89	87 86			88	87	89			P	E.R.	SM/SM
5	8/14/2008	1:00	80	19	C.L.	750/750		85 84	83 82	81 83			85	84	86			P	E.R.	SM/SM
6	8/14/2008	1:10	80	22	M.R.	750/750		81 80	82 81	79 80			86	85	84			P	E.R.	SM/SM
7	8/14/2008	2:00	80	5	M.R.		450/380	77	75	77			78	79	78			P	E.R.	TX/TX
8	8/15/2008	7:15	70	5	M.R.		450/380	78	77	79			80	79	81			P	E.R.	TX/TX
9	8/16/2008	8:40	68	19	C.L.	750/750		68 69	65 68	70 69			75	82	77			P	E.R.	SM/SM
10	8/16/2008	8:45	68	22	M.R.	750/750		71 70	69 72	68 70			78	82	81			P	E.R.	SM/SM
11	8/16/2008	9:15	70	10	M.M.	750/750		68 72	70 69	68 68			77	76	70			P	E.R.	SM/SM
12	8/16/2008	9:25	70	10	M.M.	750/750		74 74	72 76	76 77			80	81	84			P	E.R.	TX/TX
13	8/16/2008	1:00	85	10	M.M.	750/750		75 76	74 73	75 74			79	78	80			P	E.R.	SM/SM
14	8/16/2008	1:05	85	19	C.L.	750/750		75 73	75 74	76 73			81	80	79			P	E.R.	SM/SM

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 2 of 10

Material: LLDPE
40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
15	8/16/2008	1:15	85	22	M.R.	750/750		72 73	74 75	73 76			80	78	81			P	E.R.	SM/SM
16	8/18/2008	7:15	75	5	H.V.		450/380	74	75	76			82	80	80			P	E.R.	TX/TX
17	8/18/2008	1:20	85	5	H.V.		450/380	75	73	76			81	79	78			P	E.R.	TX/TX
18	8/19/2008	7:40	80	5	H.V.		450/380	76	73	75			82	81	79			P	E.R.	TX/TX
19	8/19/2008	10:30	88	10	M.M.	750/750		68 69	71 73	70 70			80	84	81			P	E.R.	SM/SM
20	8/19/2008	11:00	90	22	M.R.	750/750		70 75	72 75	70 71			81	80	86			P	E.R.	SM/SM
21	8/19/2008	12:50	90	5	H.V.		450/380	72	73	74			80	79	75			P	E.R.	TX/TX
22	8/20/2008	7:10	75	5	H.V.		450/380	76	77	76			81	82	81			P	E.R.	TX/TX
23	8/20/2008	1:05	90	5	H.V.		450/380	75	72	73			80	79	80			P	E.R.	TX/TX
24	8/20/2008	1:15	80	10	M.M.	750/750		75 74	73 73	65 69			81	80	78			P	E.R.	SM/SM
25	8/22/2008	7:50	75	19	C.L.	750/750		82 77	87 80	82 82			88	90	85			P	E.R.	SM/SM
26	8/22/2008	8:05	75	10	M.M.	750/750		79 75	72 70	76 76			88	77	77			P	E.R.	SM/SM
27	8/22/2008	7:50	75	22	M.R.	750/750		80 75	79 75	76 78			87	87	80			P	E.R.	SM/SM
28	8/23/2008	7:05	70	5	H.V.		450/380	76	75	76			81	83	82			P	E.R.	TX/TX

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 3 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
29	8/22/2008	1:10	85	10	M.M.	750/750		74 73	76 73	74 74			82	80	81			P	E.R.	SM/SM
30	8/22/2008	1:15	85	19	C.L.	750/750		75 736	74 75	72 74			82	80	79			P	E.R.	SM/SM
31	8/22/2008	1:12	85	22	M.R.	750/750		74 75	74 74	73 74			80	81	82			P	E.R.	SM/SM
32	8/23/2008	1:00	86	5	H.V.		450/380	72	75	76			81	83	80			P	E.R.	TX/TX
33	8/25/2008	7:10	75	5	H.V.		450/380	75	74	74			82	80	82			P	E.R.	TX/TX
34	8/25/2008	1:05	86	5	H.V.		450/380	74	76	77			80	81	80			P	E.R.	TX/TX
35	9/4/2008	7:15	80	19	C.L.	750/750		71 72	70 69	68 70			81	80	81			P	E.R.	SM/SM
36	9/4/2008	7:30	80	6	M.M.	750/750		72 71	70 71	69 68			80	82	80			P	E.R.	SM/SM
37	9/4/2008	7:35	80	22	M.R.	750/750		71 70	69 71	69 70			81	81	82			P	E.R.	SM/SM
38	9/4/2008	8:45	80	5	H.V.		450/380	72	73	70			82	83	80			P	E.R.	TX/TX
39	9/30/2008	9:30	75	1	C.F.		450/380	77	78	76			89	88	87			P	E.R.	TX/TX
40	10/2/2008	8:30	65	6	M.M.	750/750		75 78	78 78	76 79			90	89	90			P	E.R.	SM/SM
41	10/2/2008	8:35	65	22	M.R.	750/750		81 79	76 77	76 80			98	96	96			P	E.R.	SM/SM
42	10/2/2008	10:00	65	19	C.L.	750/750		75 78	79 80	77 79			92	98	99			P	E.R.	SM/SM

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 4 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
43	10/2/2008	1:00	70	16	M.M.	750/750		75 77	78 76	77 75			89	88	89			P	E.R.	SM/SM
44	10/2/2008	1:05	70	22	M.R.	750/750		78 77	78 77	79 78			88	90	87			P	E.R.	SM/SM
45	10/2/2008	2:00	70	19	C.F.	750/750		78 79	78 79	77 76			89	88	91			P	E.R.	SM/SM
46	10/3/2008	8:00	65	1	C.F.		450/380	78	79	77			87	88	87			P	E.R.	TX/TX
47	10/3/2008	8:15	65	5	M.M.		450/380	77	80	79			85	87	88			P	E.R.	TX/TX
48	10/3/2008	1:10	75	1	C.F.		450/380	78	79	81			86	86	87			P	E.R.	TX/TX
49	10/3/2008	1:15	75	5	M.M.		450/380	77	78	77			88	87	87			P	E.R.	TX/TX
50	10/4/2008	7:30	70	1	C.F.		450/380	78	79	80			87	88	89			P	E.R.	TX/TX
51	10/4/2008	7:35	70	22	M.R.	750/750		75 76	77 76	76 75			89	90	88			P	E.R.	SM/SM
52	10/4/2008	7:40	70	6	M.M.	750/750		75 78	77 76	78 79			91	90	89			P	E.R.	SM/SM
53	10/4/2008	12:45	75	1	C.F.		450/380	75	76	76			79	81	79			P	E.R.	TX/TX
54	10/4/2008	12:50	75	22	M.R.	750/750		77 78	75 75	77 75			82	85	87			P	E.R.	SM/SM
55	10/4/2008	1:00	75	6	M.R.	750/750		76 77	78 77	79 75			86	86	88			P	E.R.	SM/SM
56	10/6/2008	7:15	75	1	C.F.		450/380	78	77	79			89	88	90			P	E.R.	TX/TX

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 5 of 10

Material: LLDPE
40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
57	10/6/2008	8:45	70	5	M.M.		430/380	76	78	77			86	88	87			P	E.R.	TX/TX
58	10/6/2008	7:30	70	6	M.M.	750/750		77 78	77 76	79 78			88	89	88			P	E.R.	SM/SM
59	10/7/2008	7:05	65	6	M.M.	750/750		77 78	78 76	77 78			89	90	91			P	E.R.	SM/SM
60	10/7/2008	7:10	65	22	M.R.	750/750		75 76	77 78	79 76			91	90	91			P	E.R.	SM/SM
61	10/7/2008	7:15	65	19	C.F.	750/750		76 77	78 77	75 76			89	91	90			P	E.R.	SM/SM
62	10/7/2008	12:45	75	6	M.M.	750/750		76 75	75 77	78 77			88	91	92			P	E.R.	SM/SM
63	10/7/2008	12:50	75	22	M.R.	750/750		76 77	76 78	77 78			89	91	90			P	E.R.	SM/SM
64	10/7/2008	1:00	75	19	C.F.	750/750		76 77	78 79	77 78			92	91	89			P	E.R.	SM/SM
65	10/9/2008	7:15	70	1	C.F.		430/380	75	76	76			89	90	88			P	E.R.	TX/TX
66	10/9/2008	7:10	70	5	M.M.		430/380	77	78	76			88	91	90			P	E.R.	TX/TX
67	10/15/2008	7:10	65	6	M.M.	750/750		75 76	77 78	76 78			84	85	86			P	E.R.	SM/SM
68	10/15/2008	7:15	65	22	M.R.	750/750		76 77	76 78	78 77			86	87	88			P	E.R.	SM/SM
69	10/15/2008	1:00	75	19	C.F.	750/750		75 77	76 77	78 76			79	82	85			P	E.R.	SM/SM
70	10/16/2008	0.3438	70	1	C.F.		430/380	78	79	78			86	84	85			P	E.R.	TX/TX

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 6 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
71	10/16/2008	7:20	70	5	M.M.		450/380	77	76	75			86	85	86			P	E.R.	TX/TX
72	10/15/2008	1:10	80	6	M.M.	750/750		75	77	76			82	83	84			P	E.R.	SM/SM
								76	78	75										
73	10/15/2008	1:15	80	22	M.R.	750/750		75	77	77			84	85	86			P	E.R.	SM/SM
								76	78	76										
74	11/6/2008	7:30	60	6	M.M.	750/750		76	78	76			86	87	88			P	E.R.	SM/SM
								77	77	78										
75	11/6/2008	7:35	60	22	M.R.	750/750		78	77	77			86	88	86			P	E.R.	SM/SM
								76	78	78										
76	11/6/2008	12:40	68	6	M.M.	750/750		77	76	76			85	84	86			P	E.R.	SM/SM
								78	75	75										
77	11/6/2008	12:50	68	22	M.R.	750/750		94	76	74			83	84	84			P	E.R.	SM/SM
								75	76	76										
78	11/7/2008	7:45	63	6	M.M.	750/750		77	78	76			86	85	85			P	E.R.	SM/SM
								78	77	77										
79	11/7/2008	7:55	63	22	M.R.	750/750		76	79	76			85	86	86			P	E.R.	SM/SM
								77	77	78										
80	11/7/2008	1:00	70	6	M.M.	750/750		76	75	75			84	85	85			P	E.R.	SM/SM
								77	74	74										
81	11/7/2008	1:05	70	22	M.R.	750/750		76	74	75			84	86	86			P	E.R.	SM/SM
								75	74	76										
82	11/7/2008	1:15	70	19	C.F.	750/750		74	75	74			82	83	85			P	E.R.	SM/SM
								75	74	76										
83	11/8/2008	11:00	72	5	M.M.		500/400	73	74	73			79	81	82			P	E.R.	TX/TX
84	11/10/2008	7:00	50	1	C.F.		500/400	72	73	74			81	82	83			P	E.R.	TX/TX

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CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 7 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
85	11/10/2008	7:05	50	5	M.M.		500/400	74	73	76			82	84	85			P	E.R.	TX/TX
86	11/10/2008	12:45	75	1	C.F.		500/400	72	73	73			81	80	82			P	E.R.	TX/TX
87	11/10/2008	12:50	75	5	M.M.		500/400	71	72	74			83	81	82			P	E.R.	TX/TX
88	11/11/2008	11:00	50	5	M.M.		500/400	75	76	75			79	81	80			P	E.R.	TX/TX
89	11/19/2008	7:00	40	22	M.R.	800/700		79 78	78 78	77 79			82	82	81			P	E.R.	SM/SM
90	11/19/2008	7:05	40	6	M.M.	800/700		76 77	78 79	77 78			83	84	83			P	E.R.	SM/SM
91	11/19/2008	7:10	40	19	C.F.	800/700		78 78	77 77	78 77			82	81	83			P	E.R.	SM/SM
92	11/19/2008	12:45	50	22	M.R.	800/700		77 78	77 75	76 76			79	80	79			P	E.R.	SM/SM
93	11/19/2008	12:50	50	6	M.M.	800/700		76 75	77 78	75 77			81	81	80			P	E.R.	SM/SM
94	11/19/2008	1:00	50	19	C.F.	800/700		75 76	77 78	75 76			80	81	82			P	E.R.	SM/SM
95	11/20/2008	7:10	42	1	C.F.		500/400	78	77	80			80	79	79			P	E.R.	TX/TX
96	11/20/2008	7:15	42	5	M.M.		500/400	79	78	77			81	81	82			P	E.R.	TX/TX
97	11/20/2008	1:00	55	1	C.F.		500/400	78	76	77			80	79	78			P	E.R.	TX/TX
98	11/20/2008	1:05	55	5	M.M.		500/400	78	77	78			81	82	80			P	E.R.	TX/TX

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 8 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
99	12/22/2008	7:45		X#10	JV		450/500	74	85	80			92	90	89			P	ML	TX/TX
100	1/14/2009	10:00		X#11	DR		450/500	101	104	102			110	110	112			P	IF	TX/TX
101	1/14/2009	10:10		X#10	JV		450/500	100	105	100			109	110	110			P	IF	TX/TX
102	1/14/2009	2:10		X#11	DR		450/500	105	101	104			113	110	112			P	IF	TX/TX
103	1/14/2009	2:15		X#10	JV		450/500	103	105	104			113	112	113			P	IF	TX/TX
104	1/15/2009	9:12		X#10	JV		450/500	99	98	98			101	102	102			P	IF	TX/TX
105	1/15/2009	10:12		X#11	DR		450/500	105	106	105			106	108	108			P	IF	TX/TX
106	1/30/2009	8:30		M#22	EF	860/600		108 99	96 91	104 99			124	111	114			P	IF	SM/SM
107	1/30/2009	8:20		M#20	DR	860/550		104 103	88 89	103 106			120	106	127			P	IF	SM/SM
108	1/30/2009	8:23		M#25	RO	860/550		111 114	92 91	113 109			100	120	125			P	IF	SM/SM
109	1/30/2009	8:23		M#20	DR	860/500		110 109	101 108	103 110			100	121	115			P	IF	TX/TX
110	1/31/2009	7:49		X#9	JV		500/450	97	101	119			100	121	123			P	JR	TX/TX
111	1/31/2009	7:41		M#25	RO	860/710		98 92	90 101	113 108			135	109	111			P	JR	SM/SM
112	1/31/2009	8:08		M#20	DR	860/600		104 109	110 102	104 98			125	110	119			P	JR	SM/SM

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 9 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
113	1/31/2009	8:27		M#20	DR	860/500		102 119	108 113	100 108			141	118	124			P	JR	TX/TX
114	1/31/2009	8:25		M#22	EF	840/560		100 99	102 113	96 104			118	106	131			P	JR	SM/SM
115	1/31/2009	8:28		M#22	EF	840/500		102 101	94 97	93 106			110	106	108			P	EF	TX/TX
116	1/31/2009	12:44		X#9	JV		450/500	100	86	102			103	109	108			P	EF	TX/TX
117	1/31/2009	1:45		X#8	FL		550/509	82	88	96			90	93	101			P	EF	TX/TX
118	2/1/2009	8:40		X#8	FL		550/450	74	85	80			92	90	89			P	EF	TX/TX
119	2/1/2009	8:32		X#9	JV		550/450	75	71	73			75	89	94			P	EF	TX/TX
120	2/2/2009	11:37		M#25	RO	825/600		104	94									F	EF	
121	2/2/2009	11:50		M#20	DR	830/550		80 95	91 82	90 80			99	93	102			P	EF	SM/SM
122	2/2/2009	12:14		M#22	EF	850/650		82 91	83 96	84 99								P	EF	SM/SM
123	2/4/2009	2:18		X#8	DR		850/550	92	92	102			105	98	110			P	EF	SM/SM
124	2/6/2009	1:00		M#20	DR	860/550		110 113	120 98	111 107			120	107	116			P	EF	SM/SM
125	2/6/2009	1:05		M#25	CM	860/500		114 113	114 121	109 113			131	107	114			P	EF	SM/SM
126	2/6/2009	1:03		M#22	EF	860/550		93 93	106 100	111 98			121	109	124			P	EF	SM/SM

CDM

CQC Form 104
Daily QC Report Pre-weld Testing

Project No.: 6172-55752
Project Name: North Wake
Start Date: 8/12/2008
Project Location: Raleigh, NC
Page: 10 of 10

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

Sample #	Date	Time	Ambient Temp.	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
								Peel (ppi) IN / OUT					Shear (ppi)							
				Machine	Operator	Temp/ Speed °F/fpm (or %max)	Barrel/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
127	2/7/2009	8:50		M#25	CM	860/550		107 108	85 84	96 86			112	102	115			P	IF	SM/SM
128	2/7/2009	8:52		M#22	EF	860/550		75 86	81 78	79 86			105	110	103			P	IF	SM/SM
129	2/7/2009	10:02		M#20	DR	800/550		104 94	91 80	100 101			122	105	114			P	IF	SM/SM
130	2/13/2009	7:40		X#8	DR		550/460	98	99	97			100	102	100			P	IF	TX/TX
131	2/13/2009	7:42		X#9	JV		550/450	100	97	99			105	100	101			P	IF	TX/TX
132	2/14/2009	8:00		X#9	JV		550/450	99	97	100			101	100	105			P	IF	TX/TX
133	2/14/2009	8:05		X#8	DR		550/450	100	101	103			105	100	106			P	IF	TX/TX
134	2/17/2009	8:11		X#9	JV		550/450	103	97	100			100	106	102			P	IF	TX/TX
135	2/20/2009	8:26		M#20	CM	860/550		102 100	90 100	95 91			103	112	105			P	IF	SM/SM
136	2/20/2009	10:30		X#9	AL		550/450	100	103	97			105	106	101			P	IF	TX/TX
137	2/20/2009	11:03		X#8	CM		550/450	95	97	95			101	100	100			P	IF	TX/TX

CDM

APPENDIX B-11

LLDPE Liner Seaming Log (CQC-106)

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/13/2008
Project Location: Raleigh NC
Page: 1 of 1

LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-1/2	1:57	M.R.	22	750	75%	BOS	EOS	177	30	30	8:22	8:27	F.L.	V.S.	8/14/2008	P
P-1/3	2:20	M.R.	22	750	75%	BOS	EOS	22.5	30	30	7:40	7:45	F.L.	V.S.	8/14/2008	P
P-2/3	2:02	C.L.	19	750	75%	BOS	EOS	22.5	30	30	7:43	7:48	F.L.	V.S.	8/14/2008	P
P-3/4	2:25	C.L.	19	750	75%	BOS	EOS	185	30	30	7:45	7:50	F.L.	V.S.	8/14/2008	P
P-2/4	2:45	C.L.	19	750	75%	BOS	EOS	177	30	30	8:15	8:20	F.L.	V.S.	8/14/2008	P
P-3/5	2:19	C.L.	19	750	75%	BOS	EOS	40	30	30	7:52	7:57	F.L.	V.S.	8/14/2008	P
P-4/5	2:12	C.L.	19	750	75%	BOS	EOS	22.5	30	30	7:55	8:00	F.L.	V.S.	8/14/2008	P
P-5/6	2:44	M.R.	22	750	75%	BOS	EOS	40	30	30	7:58	8:03	F.L.	V.S.	8/14/2008	P
P-4/6	2:53	M.R.	22	750	75%	BOS	340'>BOS	340	30	30	8:29	8:34	F.L.	V.S.	8/14/2008	P
P-4/6	3:25	M.R.	22	750	75%	21' BOS	EOS	21	30	30	8:31	8:36	F.L.	V.S.	8/14/2008	P
P-6/8	5:15	C.L.	19	750	75%	BOS	120'>BOS	120	30	30	2:45	2:50	F.L.	V.S.	8/14/2008	P
P-6/8	5:30	C.L.	19	750	75%	19'>BOS	EOS	19	30	30	2:44	2:49	F.L.	V.S.	8/14/2008	P
P-6/8	5:40	C.L.	19	750	75%	51'>BOS	EOS	51	30	30	2:42	2:47	F.L.	V.S.	8/14/2008	P
P-6/8	5:45	C.L.	19	750	75%	24'>BOS	EOS	24	30	30	2:39	2:44	F.L.	V.S.	8/14/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/14/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-6/8	8:03	C.L.	19	750	75%	BOS	23'>BOS	23	29	30	2:37	2:42	F.L.	V.S	8/15/2008	P
P-6/8	8:05	C.L.	19	750	75%	18'>BOS	EOS	18	30	30	2:33	2:38	F.L.	V.S	8/15/2008	P
P-7/8	3:04	C.L.	19	750	75%	BOS	EOS	22.5	30	30	2:31	2:36	F.L.	V.S	8/15/2008	P
P-6/7	8:07	C.L.	19	750	75%	BOS	31'>BOS	31	30	30	2:16	2:21	F.L.	V.S	8/15/2008	P
P-6/7	8:09	C.L.	19	750	75%	12'>BOS	EOS	12	30	30	2:24	2:29	F.L.	V.S	8/15/2008	P
P-6/7	8:10	C.L.	19	750	75%	64'>BOS	EOS	64	30	30	8:38	8:43	F.L.	V.S	8/15/2008	P
P-6/7	8:10	C.L.	19	750	75%	37'>BOS	EOS	37	30	30	8:40	8:45	F.L.	V.S	8/15/2008	P
P-8/10	7:50	M.R.	22	750	75%	BOS	EOS	84	30	30	2:53	2:58	F.L.	V.S	8/15/2008	P
P-9/10	7:45	M.R.	22	750	75%	BOS	EOS	22.5	30	30	2:58	3:03	F.L.	V.S	8/15/2008	P
P-8/9	8:02	M.R.	22	750	75%	BOS	EOS	190	30	30	2:51	2:56	F.L.	V.S	8/15/2008	P
P-7/9	8:20	M.R.	22	750	75%	BOS	EOS	145	30	30	3:13	3:18	F.L.	V.S	8/15/2008	P
P-10/11	9:20	C.L.	19	750	75%	BOS	EOS	84	30	30	3:00	3:05	F.L.	V.S	8/15/2008	P
P-9/4	9:30	C.L.	19	750	75%	BOS	195'>BOS	195	30	30	3:02	3:07	F.L.	V.S	8/15/2008	P
P-9/11	9:45	C.L.	19	750	75%	BOS	EOS	140	30	30	3:40	3:45	F.L.	V.S	8/15/2008	P
P-11/13	9:33	M.R.	22	750	75%	BOS	140'>BOS	140	30	30	3:10	3:15	F.L.	V.S	8/15/2008	P
P-13/15	10:12	C.L.	19	750	75%	BOS	EOS	107	30	30	4:05	4:10	F.L.	V.S	8/15/2008	P
P-14/15	10:07	C.L.	19	750	75%	BOS	EOS	22.5	30	30	4:09	4:14	F.L.	V.S	8/15/2008	P
P-13/14	10:25	C.L.	19	750	75%	BOS	EOS	197	30	30	4:03	4:08	F.L.	V.S	8/15/2008	P
P-11/13	9:49	M.R.	22	750	75%	164'>BOS	EOS	164	30	30	3:42	3:47	F.L.	V.S	8/15/2008	P
P-11/12	10:05	M.R.	22	750	75%	BOS	EOS	98	30	30	3:45	3:50	F.L.	V.S	8/15/2008	P
P-12/13	9:23	M.R.	22	750	75%	BOS	EOS	22.5	30	30	3:48	3:53	F.L.	V.S	8/15/2008	P
P-12/14	10:40	C.L.	19	750	75%	BOS	EOS	98	30	30	3:50	3:55	F.L.	V.S	8/15/2008	P
P-15/16	12:45	M.R.	22	750	75%	BOS	EOS	7	30	30	5:28	5:33	F.L.	V.S	8/15/2008	P
P-15/17	12:47	M.R.	22	750	75%	BOS	EOS	99	30	28	4:20	4:25	F.L.	V.S	8/15/2008	P
P-14/17	1:10	M.R.	22	750	75%	BOS	EOS	19	30	29	4:18	4:23	F.L.	V.S	8/15/2008	P
P-14/19	1:13	M.R.	22	750	75%	BOS	25'>BOS	25	30	30	4:24	4:29	F.L.	V.S	8/15/2008	P
P-14/19	1:16	M.R.	22	750	75%	88'>BOS	EOS	88	30	30	4:26	4:31	F.L.	V.S	8/15/2008	P
P-14/20	1:23	M.R.	22	750	75%	BOS	65'>BOS	65	30	30	4:35	4:40	F.L.	V.S	8/15/2008	P
P-14/20	1:29	M.R.	22	750	75%	49'>BOS	EOS	49	30	30	4:42	4:47	F.L.	V.S	8/15/2008	P
P-20/21	2:20	C.L.	19	750	75%	BOS	EOS	35	30	29	4:50	4:55	F.L.	V.S	8/15/2008	P
P-14/21	1:33	M.R.	22	750	75%	BOS	EOS	35	30	30	4:48	4:53	F.L.	V.S	8/15/2008	P
P-19/20	12:00	C.L.	19	750	75%	BOS	EOS	155	30	30	4:36	4:41	F.L.	V.S	8/15/2008	P
P-17/19	11:28	C.L.	19	750	75%	BOS	EOS	177	30	30	4:25	4:30	F.L.	V.S	8/15/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/14/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-18/19	11:41	C.L.	19	750	75%	BOS	EOS	90	30	30	4:59	5:04	F.L.	V.S	8/15/2008	P
P-17/18	10:56	C.L.	19	750	75%	BOS	EOS	22.5	30	30	5:07	5:12	F.L.	V.S	8/15/2008	P
P-16/18	12:05	M.R.	22	750	75%	BOS	EOS	90	30	30	4:09	4:14	F.L.	V.S	8/15/2008	P
P-16/17	11:52	M.R.	22	750	75%	51'>BOS	EOS	51	30	30	4:11	4:16	F.L.	V.S	8/15/2008	P
P-16/17	11:45	M.R.	22	750	75%	86'>BOS	EOS	86	30	30	5:15	5:20	F.L.	V.S	8/15/2008	P
P-16/17	11:35	M.R.	22	750	75%	64'>BOS	EOS	64	30	30	4:17	4:22	F.L.	V.S	8/15/2008	P
P-16/17	11:27	M.R.	22	750	75%	BOS	90'>BOS	90	30	30	5:27	5:32	F.L.	V.S	8/15/2008	P
P-16/22	1:39	C.L.	19	750	75%	BOS	298'>BOS	298	30	29	8:02	8:07	F.L.	V.S	8/15/2008	P
P-22/24	2:05	M.R.	22	750	75%	BOS	EOS	190	30	29	8:10	8:15	F.L.	V.S	8/15/2008	P
P-23/24	2:00	M.R.	22	750	75%	BOS	EOS	22.5	30	29	8:23	8:28	F.L.	V.S	8/15/2008	P
P-22/23	2:25	M.R.	22	750	75%	BOS	EOS	200	30	29	8:12	8:17	F.L.	V.S	8/15/2008	P
P-16/22	1:50	C.L.	19	750	75%	94'>BOS	EOS	94	30	30	7:58	8:03	F.L.	V.S	8/15/2008	P
P-23/25	2:38	C.L.	19	750	75%	BOS	10'>BOS	10	30	30	8:18	8:23	F.L.	V.S	8/15/2008	P
P-33/25	2:36	C.L.	19	750	75%	190'>BOS	EOS	190	30	29	8:16	8:21	F.L.	V.S	8/15/2008	P
P-34/25	2:24	C.L.	19	750	75%	BOS	EOS	190	30	29	8:27	8:32	F.L.	V.S	8/15/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/16/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
p-25/26	8:53	C.L.	19	750	75%	BOS	BOS	380	30	30	10:45	10:50	F.L.	V.S.	8/20/2008	P
p-26/28	9:22	M.R.	22	750	75%	BOS	60'>BOS	60	30	30	10:47	10:52	F.L.	V.S.	8/20/2008	P
p-26/28	9:30	M.R.	22	750	75%	110'>BOS	EOS	110	30	30	10:50	10:55	F.L.	V.S.	8/20/2008	P
p-27/28	9:30	M.M.	10	750	75%	BOS	EOS	22.5	30	29	10:58	11:03	F.L.	V.S.	8/20/2008	P
p-26/27	9:42	M.R.	22	750	75%	BOS	35'>BOS	35	30	30	11:07	11:12	F.L.	V.S.	8/20/2008	P
p-26/27	9:49	M.R.	22	750	75%	15'>BOS	EOS	15	30	30	11:11	11:16	F.L.	V.S.	8/20/2008	P
p-26/27	9:52	M.R.	22	750	75%	155'>BOS	EOS	155	30	30	11:15	11:20	F.L.	V.S.	8/20/2008	P
p-27/29	10:00	M.M.	10	750	75%	BOS	150'>BOS	150	30	30	11:09	11:14	F.L.	V.S.	8/20/2008	P
p-28/29	9:40	M.M.	10	750	75%	BOS	EOS	150	30	30	11:00	11:05	F.L.	V.S.	8/20/2008	P
p-29/31	10:05	C.L.	19	750	75%	BOS	EOS	276	30	30	11:20	11:25	F.L.	V.S.	8/20/2008	P
p-31/32	10:30	M.R.	22	750	75%	BOS	EOS	252	30	29	11:25	11:30	F.L.	V.S.	8/20/2008	P
p-30/31	10:16	M.R.	22	750	75%	BOS	EOS	22.5	30	30	11:23	11:28	F.L.	V.S.	8/20/2008	P
p-29/30	10:40	C.L.	19	750	75%	BOS	EOS	66	30	30	11:21	11:26	F.L.	V.S.	8/20/2008	P
p-30/32	10:55	M.R.	22	750	75%	BOS	EOS	66	30	30	11:27	11:32	F.L.	V.S.	8/20/2008	P
p-32/33	10:53	M.M.	10	750	75%	BOS	EOS	300	30	30	11:42	11:47	F.L.	V.S.	8/20/2008	P
p-334	11:13	C.L.	19	750	75%	BOS	EOS	280	30	30	11:45	11:50	F.L.	V.S.	8/20/2008	P
p-34/35	11:43	M.R.	22	750	75%	BOS	EOS	265	30	30	11:47	11:52	F.L.	V.S.	8/20/2008	P
p-35/36	11:50	M.M.	10	750	75%	BOS	EOS	253	30	30	11:50	11:55	F.L.	V.S.	8/20/2008	P
p-36/38	1:07	C.L.	19	750	75%	BOS	EOS	143	30	30	12:08	12:13	F.L.	V.S.	8/20/2008	P
p-37/38	1:03	C.L.	19	750	75%	BOS	EOS	22.5	30	30	12:10	12:15	F.L.	V.S.	8/20/2008	P
p-36/37	12:05	C.L.	19	750	75%	BOS	10'>BOS	10	30	30	11:59	12:04	F.L.	V.S.	8/20/2008	P
p-37/39	1:08	M.R.	22	750	75%	BOS	EOS	80	30	30	12:12	12:17	F.L.	V.S.	8/20/2008	P
p-36/37	12:07	C.L.	19	750	75%	83'>BOS	EOS	83	30	30	12:01	12:06	F.L.	V.S.	8/20/2008	P
p-38/39	1:20	M.R.	22	750	75%	BOS	131'>BOS	131	30	30	2:25	2:30	F.L.	V.S.	8/20/2008	P
p-38/39	1:35	M.R.	22	750	75%	15'>BOS	EOS	15	30	30	2:15	2:20	F.L.	V.S.	8/20/2008	P
p-39/40	1:15	M.M.	10	750	75%	BOS	185'>BOS	185	30	30	2:46	2:51	F.L.	V.S.	8/20/2008	P
p-39/40	1:35	M.M.	10	750	75%	15'>BOS	EOS	15	30	30	2:17	2:22	F.L.	V.S.	8/20/2008	P
p-40/41	1:46	C.L.	19	750	75%	BOS	EOS	43	30	30	2:33	2:38	F.L.	V.S.	8/20/2008	P
p-41/42	1:43	C.L.	19	750	75%	BOS	EOS	22.5	30	29	2:35	2:40	F.L.	V.S.	8/20/2008	P
p-40/42	1:52	C.L.	19	750	75%	BOS	EOS	136	30	29	2:27	2:32	F.L.	V.S.	8/20/2008	P
p-41/43	1:54	M.R.	22	750	75%	BOS	EOS	35	30	30	2:38	2:43	F.L.	V.S.	8/20/2008	P
p-42/43	1:59	M.R.	22	750	75%	BOS	EOS	143	30	30	2:45	2:50	F.L.	V.S.	8/20/2008	P
p-43/44	1:55	M.M.	10	750	75%	BOS	EOS	121	30	30	2:55	3:00	F.L.	V.S.	8/20/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/16/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-44/45	2:12	C.L.	19	750	75%	BOS	EOS	121	30	30	2:56	3:01	F.L.	V.S.	8/20/2008	P
P-45/46	2:41	M.R.	22	750	75%	BOS	EOS	100	30	30	3:00	3:05	F.L.	V.S.	8/20/2008	P
P-46/47	2:46	M.M.	10	750	75%	BOS	EOS	83	30	30	3:06	3:11	F.L.	V.S.	8/20/2008	P
P-47/48	2:58	M.R.	22	750	75%	BOS	30'>BOS	30	30	30	3:10	3:15	F.L.	V.S.	8/20/2008	P
P-47/48	3:06	M.R.	22	750	75%	26'>BOS	EOS	26	30	30	3:17	3:22	F.L.	V.S.	8/20/2008	P
P-48/49	2:57	M.M.	10	750	75%	BOS	EOS	40	30	30	2:25	2:30	F.L.	V.S.	8/20/2008	P
P-49/50	3:10	M.M.	10	750	75%	BOS	EOS	26	30	30	3:36	3:41	F.L.	V.S.	8/20/2008	P
P-50/51	3:15	M.M.	10	750	75%	BOS	EOS	16	30	30	3:46	3:51	F.L.	V.S.	8/20/2008	P
P-51/52	3:39	M.R.	22	750	75%	BOS	EOS	16	30	30	3:47	3:52	F.L.	V.S.	8/20/2008	P
P-52/53	3:22	M.M.	10	750	75%	BOS	EOS	26	30	30	3:53	3:58	F.L.	V.S.	8/20/2008	P
P-53/54	3:25	M.R.	22	750	75%	BOS	EOS	38	30	30	4:00	4:05	F.L.	V.S.	8/20/2008	P
P-54/55	3:40	M.M.	10	750	75%	BOS	EOS	64	30	30	4:01	4:06	F.L.	V.S.	8/20/2008	P
P-55/56	3:52	M.M.	10	750	75%	BOS	EOS	84	30	30	4:05	4:10	F.L.	V.S.	8/20/2008	P
P-56/57	4:05	M.M.	10	750	75%	BOS	EOS	22.5	30	30	3:58	4:03	F.L.	V.S.	8/20/2008	P
P-55/57	4:10	M.M.	10	750	75%	BOS	EOS	18	30	30	3:57	4:02	F.L.	V.S.	8/20/2008	P
P-45/56	3:45	M.R.	22	750	75%	BOS	EOS	8	30	30	4:19	4:24	F.L.	V.S.	8/20/2008	P
P-46/56	3:46	M.R.	22	750	75%	BOS	EOS	18	30	30	4:14	4:19	F.L.	V.S.	8/20/2008	P
P-47/55	3:48	M.R.	22	750	75%	BOS	EOS	24	30	30	4:04	4:09	F.L.	V.S.	8/20/2008	P
P-48/54	3:30	M.R.	22	750	75%	BOS	EOS	25	30	30	3:33	3:38	F.L.	V.S.	8/20/2008	P
P-49/53	3:33	M.R.	22	750	75%	BOS	EOS	24	30	30	3:26	3:31	F.L.	V.S.	8/20/2008	P
P-50/53	3:35	M.R.	22	750	75%	BOS	EOS	5	30	30	3:39	3:44	F.L.	V.S.	8/20/2008	P
P-50/52	3:37	M.R.	22	750	75%	BOS	EOS	17	30	30	3:40	3:45	F.L.	V.S.	8/20/2008	P
P-27/29	10:08	M.M.	10	750	75%	35'>BOS	EOS	35	30	30	4:27	4:32	F.L.	V.S.	8/20/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/18/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
E. Slope T.I.	8:10	H.V.	5	450	38%	BOS	EOS	845	Extrusion Weld					V.S.	8/14/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/19/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-56/57	10:50	M.M	10	750	75%	BOS	EOS	84	30	30	7:25	7:30	F.L.	V.S.	8/21/2008	P
P-57/58	11:02	M.M	10	750	75%	BOS	EOS	18	30	30	7:34	7:39	F.L.	V.S.	8/21/2008	P
P-58/59	11:15	M.M	10	750	75%	BOS	EOS	129	30	30	7:30	7:35	F.L.	V.S.	8/21/2008	P
P-59/60	11:33	M.M	10	750	75%	BOS	105'>BOS	105	30	30	7:36	7:41	F.L.	V.S.	8/21/2008	P
P-59/60	11:45	M.M	10	750	75%	41'>BOS	EOS	41	30	30	7:50	7:55	F.L.	V.S.	8/21/2008	P
P-60/62	11:58	M.R.	22	750	75%	BOS	EOS	42	30	30	8:01	8:06	F.L.	V.S.	8/21/2008	P
P-62/63	12:00	M.M	10	750	75%	BOS	EOS	50	30	30	8:07	8:12	F.L.	V.S.	8/21/2008	P
P-61/62	11:51	M.R.	22	750	75%	BOS	EOS	22.5	30	30	8:12	8:17	F.L.	V.S.	8/21/2008	P
P-60/61	12:05	M.R.	22	750	75%	BOS	EOS	118	30	30	8:10	8:15	F.L.	V.S.	8/21/2008	P
P-61/63	12:06	M.M	10	750	75%	BOS	EOS	118	30	30	8:15	8:20	F.L.	V.S.	8/21/2008	P
P-63/65	12:59	M.M	10	750	75%	BOS	EOS	15	30	30	8:22	8:27	F.L.	V.S.	8/21/2008	P
P-64/65	1:15	M.R.	22	750	75%	BOS	EOS	22.5	30	30	8:27	8:32	F.L.	V.S.	8/21/2008	P
P-65/64	1:01	M.M	10	750	75%	BOS	EOS	178	30	30	8:25	8:30	F.L.	V.S.	8/21/2008	P
P-65/66	1:17	M.R.	22	750	75%	BOS	EOS	22	30	30	8:35	8:40	F.L.	V.S.	8/21/2008	P
P-64/66	1:20	M.R.	22	750	75%	BOS	EOS	62	30	30	8:44	8:49	F.L.	V.S.	8/21/2008	P
P-66/67	1:36	M.R.	22	750	75%	BOS	EOS	22.5	30	30	8:51	8:56	F.L.	V.S.	8/21/2008	P
P-64/67	1:30	M.R.	22	750	75%	BOS	EOS	112	30	30	8:47	8:52	F.L.	V.S.	8/21/2008	P
P-66/68	1:55	M.R.	22	750	75%	BOS	EOS	122	30	30	8:59	9:04	F.L.	V.S.	8/21/2008	P
P-67/68	2:20	M.R.	22	750	75%	BOS	EOS	112	30	30	8:55	9:00	F.L.	V.S.	8/21/2008	P
P-68/70	3:57	M.R.	22	750	75%	BOS	EOS	35	30	30	9:08	9:13	F.L.	V.S.	8/21/2008	P
P-68/69	4:00	M.R.	22	750	75%	BOS	130'>BOS	130	30	30	9:12	9:17	F.L.	V.S.	8/21/2008	P
P-68/69	4:15	M.R.	22	750	75%	102'>BOS	EOS	102	30	30	9:25	9:30	F.L.	V.S.	8/21/2008	P
P-69/70	3:31	M.R.	22	750	75%	BOS	EOS	22.5	30	30	9:13	9:18	F.L.	V.S.	8/21/2008	P
P-70/71	4:00	M.M	10	750	75%	BOS	EOS	40	30	30	9:21	9:26	F.L.	V.S.	8/21/2008	P
P-69/71	4:06	M.M	10	750	75%	BOS	EOS	232	30	30	9:15	9:20	F.L.	V.S.	8/21/2008	P
P-71/72	5:09	M.R.	22	750	75%	BOS	EOS	234	30	30	9:39	9:44	F.L.	V.S.	8/21/2008	P
P-72/74	4:50	M.M	10	750	75%	BOS	EOS	246	30	30	9:40	9:45	F.L.	V.S.	8/21/2008	P
P-72/73	4:35	M.M	10	750	75%	BOS	EOS	22.5	30	30	9:41	9:46	F.L.	V.S.	8/21/2008	P
P-71/72	5:40	M.R.	22	750	75%	BOS	EOS	62	30	30	10:16	10:21	F.L.	V.S.	8/21/2008	P
P-73/74	5:25	M.M	10	750	75%	BOS	EOS	62	30	30	10:14	10:19	F.L.	V.S.	8/21/2008	P
P-74/75	6:02	M.R.	22	750	75%	BOS	EOS	180	30	30	9:50	9:55	F.L.	V.S.	8/21/2008	P
P-74/76	6:20	M.R.	22	750	75%	BOS	110'>BOS	110	30	30	10:08	10:13	F.L.	V.S.	8/21/2008	P
P-74/76	6:30	M.R.	22	750	75%	50'>BOS	EOS	50	30	30	10:12	10:17	F.L.	V.S.	8/21/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/19/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-75/77	5:26	M.M.	10	750	75%	BOS	EOS	187	30	30	10:00	10:05	F.L.	V.S.	8/21/2008	P
P-75/76	5:45	M.M.	10	750	75%	BOS	EOS	22.5	30	30	10:09	10:14	F.L.	V.S.	8/21/2008	P
P-38/77	5:47	M.M.	10	750	75%	BOS	EOS	160	30	30	10:10	10:15	F.L.	V.S.	8/21/2008	P
P-38/77	6:45	M.M.	10	750	75%	BOS	EOS	23	30	30	10:03	10:08	F.L.	V.S.	8/21/2008	P
P-39/75	6:47	M.R.	22	750	75%	BOS	EOS	22	30	29	9:58	10:03	F.L.	V.S.	8/21/2008	P
P-31/75	6:49	M.R.	22	750	75%	BOS	EOS	4	30	28	9:54	9:59	F.L.	V.S.	8/21/2008	P
P-31/74	6:50	M.R.	22	750	75%	BOS	EOS	19	30	29	9:52	9:57	F.L.	V.S.	8/21/2008	P
P-32/74	6:52	M.R.	22	750	75%	BOS	EOS	5	30	29	9:42	9:47	F.L.	V.S.	8/21/2008	P
P-32/72	6:53	M.R.	22	750	75%	BOS	EOS	16	30	29	9:38	9:43	F.L.	V.S.	8/21/2008	P
P-33/72	6:55	M.R.	22	750	75%	BOS	EOS	9	30	29	9:32	9:37	F.L.	V.S.	8/21/2008	P
P-33/71	6:00	M.M.	10	750	75%	BOS	EOS	14	30	30	9:30	9:35	F.L.	V.S.	8/21/2008	P
P-34/71	6:02	M.M.	10	750	75%	BOS	EOS	11	30	29	9:22	9:27	F.L.	V.S.	8/21/2008	P
P-34/70	6:04	M.M.	10	750	75%	BOS	EOS	15	30	30	9:18	9:23	F.L.	V.S.	8/21/2008	P
P-35/70	6:06	M.M.	10	750	75%	BOS	EOS	16	30	30	9:15	9:20	F.L.	V.S.	8/21/2008	P
P-35/68	6:30	M.M.	10	750	75%	BOS	EOS	7	30	30	9:05	9:10	F.L.	V.S.	8/21/2008	P
P-68/36	2:35	M.M.	10	750	75%	BOS	EOS	14	30	30	9:02	9:07	F.L.	V.S.	8/21/2008	P
P-36/66	2:37	M.M.	10	750	75%	BOS	EOS	8	30	30	9:41	9:46	F.L.	V.S.	8/21/2008	P
P-37/66	2:38	M.M.	10	750	75%	BOS	EOS	20	30	30	8:39	8:44	F.L.	V.S.	8/21/2008	P
P-65/39	3:00	M.M.	10	750	75%	BOS	EOS	23	30	30	8:21	8:26	F.L.	V.S.	8/21/2008	P
P-39/63	3:02	M.M.	10	750	75%	BOS	EOS	5	30	30	8:20	8:25	F.L.	V.S.	8/21/2008	P
P-40/63	3:05	M.M.	10	750	75%	BOS	EOS	16	30	30	8:18	8:23	F.L.	V.S.	8/21/2008	P
P-40/62	3:15	M.M.	10	750	75%	BOS	EOS	10	30	29	8:05	8:10	F.L.	V.S.	8/21/2008	P
P-41/62	3:17	M.M.	10	750	75%	BOS	EOS	16	30	30	8:03	8:08	F.L.	V.S.	8/21/2008	P
P-41/60	3:30	M.M.	10	750	75%	BOS	EOS	8	30	30	7:58	8:03	F.L.	V.S.	8/21/2008	P
P-43/60	3:31	M.M.	10	750	75%	BOS	EOS	17	30	30	7:55	8:00	F.L.	V.S.	8/21/2008	P
P-43/59	3:33	M.M.	10	750	75%	BOS	EOS	6	30	30	7:52	7:57	F.L.	V.S.	8/21/2008	P
P-44/59	3:35	M.M.	10	750	75%	BOS	EOS	17	30	29	7:42	7:47	F.L.	V.S.	8/21/2008	P
P-44/47	3:45	M.M.	10	750	75%	BOS	EOS	9	30	30	7:42	7:47	F.L.	V.S.	8/21/2008	P
P-58/45	3:47	M.M.	10	750	75%	BOS	EOS	18	30	29	7:27	7:32	F.L.	V.S.	8/21/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/22/2008
Project Location: Raleigh NC
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LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test PSI Start	Air Pressure Test PSI Finish	Air Pressure Test Time Start	Air Pressure Test Time Finish	Air Pressure Test Tech	Vac Test Tech	Test Date	Pass / Fail
P-97/98	3:40	M.R.	22	750	75%	BOS	EOS	111	30	30	1:42	1:47	E.R.	V.S.	8/25/2008	P
P-98/99	3:15	C.L.	19	750	75%	BOS	EOS	22.5	30	30	1:40	1:45	E.R.	V.S.	8/25/2008	P
P-99/101	3:48	M.M.	10	750	75%	BOS	EOS	76	30	30	12:20	12:25	E.R.	V.S.	8/25/2008	P
P-101/102	3:49	C.L.	19	750	75%	BOS	EOS	76	30	30	1:00	1:05	E.R.	V.S.	8/25/2008	P
P-99/100	3:57	M.M.	10	750	75%	BOS	EOS	202	30	30	1:50	1:55	E.R.	V.S.	8/25/2008	P
P-100/101	3:31	C.L.	19	750	75%	BOS	EOS	22.5	30	30	12:51	12:56	E.R.	V.S.	8/25/2008	P
P-100/102	3:58	C.L.	19	750	75%	BOS	EOS	306	30	30	12:56	13:01	E.R.	V.S.	8/25/2008	P
P-98/100	4:15	M.M.	10	750	75%	BOS	EOS	111	30	29	1:37	1:42	E.R.	V.S.	8/25/2008	P
P-102/104	4:25	M.R.	22	750	75%	BOS	115'>BOS	115	30	30	1:21	1:26	E.R.	V.S.	8/25/2008	P
P-102/104	4:35	M.R.	22	750	75%	155'>BOS	EOS	155	30	29	1:20	1:25	E.R.	V.S.	8/25/2008	P
P-102/103	4:50	M.R.	22	750	75%	BOS	30'>BOS	30	30	30	1:36	1:41	E.R.	V.S.	8/25/2008	P
P-102/103	4:55	M.R.	22	750	75%	84'>BOS	EOS	84	30	30	1:30	1:35	E.R.	V.S.	8/25/2008	P
P-103/104	4:30	M.R.	22	750	75%	BOS	EOS	22.5	30	30	1:32	1:37	E.R.	V.S.	8/25/2008	P
P-104/106	4:47	C.L.	19	750	75%	BOS	EOS	60	30	30	1:17	1:22	E.R.	V.S.	8/25/2008	P
P-106/107	4:47	M.M.	10	750	75%	BOS	EOS	60	30	30	1:15	1:20	E.R.	V.S.	8/25/2008	P
P-104/105	4:55	M.M.	10	750	75%	BOS	EOS	203	30	30	1:16	1:21	E.R.	V.S.	8/25/2008	P
P-105/106	4:36	C.L.	19	750	75%	BOS	EOS	22.5	30	30	1:09	1:14	E.R.	V.S.	8/25/2008	P
P-105/107	4:56	C.L.	19	750	75%	BOS	EOS	323	30	30	1:10	1:15	E.R.	V.S.	8/25/2008	P
P-103/105	5:20	M.M.	10	750	75%	BOS	EOS	114	30	30	1:26	1:31	E.R.	V.S.	8/25/2008	P
P-86/91	1:30	M.R.	22	750	75%	BOS	EOS	51	30	30	8:45	8:50	E.R.	V.S.	8/25/2008	P
P-90/91	1:28	M.R.	22	750	75%	BOS	EOS	22.5	30	29	8:50	8:55	E.R.	V.S.	8/25/2008	P
P-86/90	1:35	M.R.	22	750	75%	BOS	EOS	347	30	30	8:49	8:54	E.R.	V.S.	8/25/2008	P
P-91/92	1:35	C.L.	19	750	75%	BOS	EOS	51	30	30	8:48	8:53	E.R.	V.S.	8/25/2008	P
P-90/92	1:39	C.L.	19	750	75%	BOS	100'>BOS	100	30	30	8:51	8:56	E.R.	V.S.	8/25/2008	P
P-90/92	1:53	C.L.	19	750	75%	247'>BOS	EOS	247	30	30	9:00	9:05	E.R.	V.S.	8/25/2008	P
P-84/87	12:29	M.R.	22	750	75%	BOS	EOS	69	30	29	8:37	8:42	E.R.	V.S.	8/25/2008	P
P-84/88	11:57	M.M.	10	750	75%	BOS	EOS	92	30	29	8:31	8:36	E.R.	V.S.	8/25/2008	P
P-87/88	11:45	M.M.	10	750	75%	BOS	EOS	92	30	30	8:33	8:38	E.R.	V.S.	8/25/2008	P
P-913/94	2:10	M.M.	10	750	75%	BOS	EOS	22.5	30	30	1:45	1:50	E.R.	V.S.	8/25/2008	P
P-92/94	2:26	M.R.	22	750	75%	BOS	EOS	276	30	29	9:04	9:09	E.R.	V.S.	8/25/2008	P
P-92/94	2:45	M.R.	22	750	75%	BOS	EOS	129	30	30	9:10	9:15	E.R.	V.S.	8/25/2008	P
P-93/95	2:50	C.L.	19	750	75%	BOS	EOS	129	30	30	1:44	1:49	E.R.	V.S.	8/25/2008	P
P-94/96	2:30	C.L.	19	750	75%	BOS	EOS	77	30	30	11:40	11:45	E.R.	V.S.	8/25/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/22/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-94/95	2:37	C.L.	19	750	75%	BOS	EOS	191	30	30	12:00	12:05	E.R.	V.S.	8/25/2008	P
P-95/96	2:40	M.M.	10	750	75%	BOS	EOS	22.5	30	30	12:01	12:06	E.R.	V.S.	8/25/2008	P
P-96/97	2:45	M.M.	10	750	75%	BOS	EOS	77	30	30	11:42	11:47	E.R.	V.S.	8/25/2008	P
P-95/97	2:55	M.M.	10	750	75%	BOS	EOS	317	30	29	11:59	12:04	E.R.	V.S.	8/25/2008	P
P-97/99	3:17	M.R.	22	750	75%	BOS	EOS	280	30	30	12:08	12:13	E.R.	V.S.	8/25/2008	P
P-77/78	8:55	M.R.	22	750	75%	BOS	EOS	383	30	30	7:20	7:25	F.L.	V.S.	8/23/2008	P
P-78/80	9:25	C.L.	19	750	75%	BOS	EOS	206	30	30	7:30	7:35	F.L.	V.S.	8/23/2008	P
P-80/82	9:47	M.R.	22	750	75%	BOS	EOS	20	30	30	7:33	7:38	F.L.	V.S.	8/23/2008	P
P-81/82	9:40	M.R.	22	750	75%	BOS	EOS	22	30	30	7:43	7:48	F.L.	V.S.	8/23/2008	P
P-80/81	9:49	M.R.	22	750	75%	BOS	EOS	186	30	30	7:36	7:41	F.L.	V.S.	8/23/2008	P
P-78/79	9:45	C.L.	19	750	75%	BOS	EOS	191	30	30	7:24	7:29	F.L.	V.S.	8/23/2008	P
P-79/80	9:17	C.L.	19	750	75%	BOS	EOS	22.5	30	29	7:26	7:31	F.L.	V.S.	8/23/2008	P
P-79/81	10:10	M.R.	22	750	75%	BOS	EOS	191	30	30	7:29	7:34	F.L.	V.S.	8/23/2008	P
P-82/83	10:08	C.L.	19	750	75%	BOS	EOS	20	30	30	7:44	7:49	F.L.	V.S.	8/23/2008	P
P-81/83	10:10	C.L.	19	750	75%	BOS	EOS	384	30	30	7:40	7:45	F.L.	V.S.	8/23/2008	P
P-83/85	11:38	M.R.	22	750	75%	BOS	EOS	240	30	30	8:00	8:05	F.L.	V.S.	8/23/2008	P
P-85/86	12:05	M.R.	22	750	75%	BOS	EOS	120	30	30	8:09	8:14	F.L.	V.S.	8/23/2008	P
P-85/89	12:15	M.R.	22	750	75%	BOS	EOS	80	30	29	8:12	8:17	F.L.	V.S.	8/23/2008	P
P-86/89	11:25	C.L.	19	750	75%	BOS	EOS	80	30	30	8:15	8:20	F.L.	V.S.	8/23/2008	P
P-87/89	11:45	C.L.	19	750	75%	BOS	EOS	10	30	30	8:17	8:22	F.L.	V.S.	8/23/2008	P
P-86/87	11:34	M.R.	22	750	75%	BOS	EOS	195	30	30	8:19	8:24	F.L.	V.S.	8/23/2008	P
P-85/87	12:22	M.R.	22	750	75%	BOS	EOS	36	30	30	8:23	8:28	F.L.	V.S.	8/23/2008	P
P-84/85	10:35	M.M.	10	750	75%	BOS	EOS	22.5	30	29	7:53	7:58	F.L.	V.S.	8/23/2008	P
P-83/84	11:50	M.R.	22	750	75%	BOS	EOS	160	30	30	7:50	7:55	F.L.	V.S.	8/23/2008	P
P-107/108	5:17	M.R.	22	750	75%	BOS	210'>BOS	210	30	30	1:57	2:02	E.R.	V.S.	8/25/2008	P
P-107/108	5:35	M.R.	22	750	75%	169'>BOS	EOS	169	30	30	1:54	1:59	E.R.	V.S.	8/25/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 9/4/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-108/111	9:05	M.M.	6	750	75%	BOS	EOS	19	30	30	9:31	9:36	F.L.	V.S.	9/4/2008	P
P-110/111	8:56	M.R.	22	750	75%	BOS	EOS	22.5	30	30	9:29	9:34	F.L.	V.S.	9/4/2008	P
P-108/110	9:08	M.M.	6	750	75%	BOS	EOS	144	30	30	9:40	9:45	F.L.	V.S.	9/4/2008	P
P-108/109	9:22	M.M.	6	750	75%	BOS	EOS	213	30	30	9:51	9:56	F.L.	V.S.	9/4/2008	P
P-109/110	9:00	M.M.	6	750	75%	BOS	EOS	22.5	30	30	9:45	9:50	F.L.	V.S.	9/4/2008	P
P-109/112	9:32	M.R.	22	750	75%	BOS	EOS	213	30	30	10:00	10:05	F.L.	V.S.	9/4/2008	P
P-110/112	9:15	M.R.	22	750	75%	BOS	EOS	144	30	30	9:43	9:48	F.L.	V.S.	9/4/2008	P
P-111/112	9:12	M.R.	22	750	75%	BOS	EOS	19	30	30	9:40	9:45	F.L.	V.S.	9/4/2008	P
P-112/114	9:50	M.M.	6	750	75%	BOS	EOS	197	30	30	10:20	10:25	F.L.	V.S.	9/4/2008	P
P-114/115	10:07	M.R.	22	750	75%	BOS	EOS	197	30	30	10:35	10:40	F.L.	V.S.	9/4/2008	P
P-112/113	10:12	M.M.	6	750	75%	BOS	EOS	183	30	30	10:48	10:53	F.L.	V.S.	9/4/2008	P
P-113/114	9:56	C.L.	19	750	75%	BOS	EOS	22.5	30	30	10:10	10:15	F.L.	V.S.	9/4/2008	P
P-113/115	10:25	M.R.	22	750	75%	BOS	EOS	183	30	30	10:50	10:55	F.L.	V.S.	9/4/2008	P
P-115/116	10:14	C.L.	19	750	75%	BOS	200'>BOS	200	30	30	10:59	11:04	F.L.	V.S.	9/4/2008	P
P-115/116	10:33	C.L.	19	750	75%	183'>BOS	EOS	183	30	30	10:54	10:59	F.L.	V.S.	9/4/2008	P
P-116/118	10:50	M.M.	6	750	75%	BOS	EOS	177	30	30	11:12	11:17	F.L.	V.S.	9/4/2008	P
P-118/119	11:02	M.R.	22	750	75%	BOS	EOS	177	30	30	11:08	11:13	F.L.	V.S.	9/4/2008	P
P-117/118	10:37	M.M.	6	750	75%	BOS	EOS	22.5	30	30	11:05	11:10	F.L.	V.S.	9/4/2008	P
P-116/117	11:05	M.M.	6	750	75%	BOS	EOS	212	30	30	11:33	11:38	F.L.	V.S.	9/4/2008	P
P-117/119	11:15	M.R.	22	750	75%	BOS	EOS	212	30	30	11:40	11:45	F.L.	V.S.	9/4/2008	P
P-119/120	11:52	C.L.	19	750	75%	BOS	EOS	390	30	30	11:52	11:57	F.L.	V.S.	9/4/2008	P
tie in north	2:20	H.V.	5	450	38%	BOS	EOS	180					F.L.	V.S.	9/4/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/2/2008
Project Location: Raleigh NC
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LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-120/121	6:00	M.R.	22	750	75%	BOS	40'>BOS	40	30	29	9:10	9:15	V.S.	V.S.	10/4/2008	P
P-120/121	6:06	M.R.	22	750	75%	260'>BOS	EOS	260	30	30	9:18	9:23	V.S.	V.S.	10/4/2008	P
P-120/121	6:32	M.R.	22	750	75%	85'>BOS	EOS	85	30	30	9:19	9:24	V.S.	V.S.	10/4/2008	P
P-123/122	8:54	M.R.	22	750	75%	BOS	EOS	22.5	30	29	9:35	9:40	V.S.	V.S.	10/4/2008	P
P-121/122	9:59	M.M.	6	750	75%	BOS	EOS	179	30	30	9:40	9:45	V.S.	V.S.	10/4/2008	P
P-123/131	9:45	M.M.	6	750	75%	BOS	EOS	202	30	29	9:33	9:38	V.S.	V.S.	10/4/2008	P
P-133/125	9:47	M.R.	22	750	75%	BOS	EOS	99	30	29	9:48	9:53	V.S.	V.S.	10/4/2008	P
P-124/125	9:22	M.R.	22	750	75%	BOS	EOS	22.5	30	30	9:50	9:55	V.S.	V.S.	10/4/2008	P
P-123/124	9:55	M.R.	22	750	75%	BOS	EOS	127	30	30	9:43	9:48	V.S.	V.S.	10/4/2008	P
P-122/124	10:10	M.R.	22	750	75%	BOS	EOS	182	30	29	9:42	9:47	V.S.	V.S.	10/4/2008	P
P-125/126	10:35	M.R.	22	750	75%	BOS	EOS	50	30	29	9:47	9:52	V.S.	V.S.	10/4/2008	P
P-124/126	10:43	M.R.	22	750	75%	BOS	EOS	314	30	29	9:51	9:56	V.S.	V.S.	10/4/2008	P
P-126/127	10:35	M.M.	6	750	75%	BOS	85'>BOS	85	30	30	9:57	10:02	V.S.	V.S.	10/4/2008	P
P-126/127	10:42	M.M.	6	750	75%	90'>BOS	EOS	90	30	29	10:00	10:05	V.S.	V.S.	10/4/2008	P
P-126/128	10:51	M.M.	6	750	75%	BOS	EOS	128	30	29	10:15	10:20	V.S.	V.S.	10/4/2008	P
P-127/128	10:30	M.M.	6	750	75%	BOS	EOS	22.5	30	29	10:14	10:19	V.S.	V.S.	10/4/2008	P
P-128/127	11:12	M.R.	22	750	75%	BOS	EOS	128	30	29	10:16	10:21	V.S.	V.S.	10/4/2008	P
P-127/129	11:30	M.R.	22	750	75%	BOS	50'>BOS	50	30	30	10:01	10:06	V.S.	V.S.	10/4/2008	P
P-127/129	11:38	M.R.	22	750	75%	79'>BOS	EOS	79	30	29	10:08	10:13	V.S.	V.S.	10/4/2008	P
P-129/130	11:38	M.M.	6	750	75%	BOS	EOS	60	30	29	10:20	10:25	V.S.	V.S.	10/4/2008	P
P-129/131	11:47	M.M.	6	750	75%	BOS	EOS	154	30	29	10:17	10:22	V.S.	V.S.	10/4/2008	P
P-130/131	11:22	C.F.	19	750	75%	BOS	EOS	22.5	30	29	10:18	10:23	V.S.	V.S.	10/4/2008	P
P-130/132	11:12	M.M.	6	750	75%	BOS	EOS	12	30	30	10:21	10:26	V.S.	V.S.	10/4/2008	P
P-131/132	11:13	M.M.	6	750	75%	BOS	EOS	154	30	29	10:22	10:27	V.S.	V.S.	10/4/2008	P
P-132/133	11:30	C.F.	19	750	75%	BOS	EOS	117	30	29	10:23	10:28	V.S.	V.S.	10/4/2008	P
P-133/134	11:47	C.F.	19	750	75%	BOS	EOS	70	30	29	10:24	10:29	V.S.	V.S.	10/4/2008	P
P-134/135	11:57	C.F.	19	750	75%	BOS	EOS	31	30	29	10:25	10:30	V.S.	V.S.	10/4/2008	P
P-138/139	1:22	M.M.	6	750	75%	BOS	10'>BOS	10	30	30	10:28	10:33	V.S.	V.S.	10/4/2008	P
P-138/139	1:24	M.M.	6	750	75%	35'>BOS	EOS	35	30	30	10:27	10:32	V.S.	V.S.	10/4/2008	P
P-137/138	1:13	M.M.	6	750	75%	BOS	EOS	22.5	30	29	10:30	10:35	V.S.	V.S.	10/4/2008	P
P-136/137	1:14	M.R.	22	750	75%	BOS	EOS	65	30	30	10:34	10:39	V.S.	V.S.	10/4/2008	P
P-136/138	1:21	M.R.	22	750	75%	BOS	EOS	35	30	30	10:33	10:38	V.S.	V.S.	10/4/2008	P
P-125/146	3:20	M.R.	22	750	75%	BOS	EOS	50	30	30	11:49	11:54	V.S.	V.S.	10/4/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/2/2008
Project Location: Raleigh NC
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LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-126/146	3:26	M.R.	22	750	75%	BOS	EOS	9	30	30	11:47	11:52	V.S.	V.S.	10/4/2008	P
P-126/147	3:27	M.R.	22	750	75%	BOS	EOS	7	30	30	10:49	10:54	V.S.	V.S.	10/4/2008	P
P-126/145	3:28	M.R.	22	750	75%	BOS	EOS	37	30	29	10:48	10:53	V.S.	V.S.	10/4/2008	P
P-127/145	3:31	M.R.	22	750	75%	BOS	EOS	31	30	29	10:47	10:52	V.S.	V.S.	10/4/2008	P
P-127/145	3:34	M.R.	22	750	75%	BOS	EOS	19	30	30	10:45	10:50	V.S.	V.S.	10/4/2008	P
P-129/143	3:36	M.R.	22	750	75%	BOS	EOS	32	30	30	10:43	10:48	V.S.	V.S.	10/4/2008	P
P-129/141	3:38	M.R.	22	750	75%	BOS	EOS	9	30	30	10:39	10:44	V.S.	V.S.	10/4/2008	P
P-135/141	3:41	M.R.	22	750	75%	BOS	EOS	51	30	30	10:40	10:45	V.S.	V.S.	10/4/2008	P
P-132/136	3:45	M.R.	22	750	75%	BOS	27'>BOS	27	30	30	10:38	10:43	V.S.	V.S.	10/4/2008	P
P-132/136	3:47	M.R.	22	750	75%	22'>BOS	EOS	22	30	29	10:37	10:42	V.S.	V.S.	10/4/2008	P
P-133/136	3:50	M.R.	22	750	75%	BOS	EOS	17	30	30	10:36	10:41	V.S.	V.S.	10/4/2008	P
P-133/137	3:52	M.R.	22	750	75%	BOS	EOS	35	30	29	10:35	10:40	V.S.	V.S.	10/4/2008	P
P-134/137	3:55	M.R.	22	750	75%	BOS	EOS	33	30	29	10:32	10:37	V.S.	V.S.	10/4/2008	P
P-134/139	3:58	M.R.	22	750	75%	BOS	EOS	13	30	29	10:29	10:34	V.S.	V.S.	10/4/2008	P
P-135/139	4:00	M.R.	22	750	75%	BOS	EOS	31	30	30	10:26	10:31	V.S.	V.S.	10/4/2008	P
P-136/141	1:45	M.M.	6	750	75%	BOS	EOS	140	30	29	12:56	13:01	V.S.	V.S.	10/4/2008	P
P-136/140	1:58	M.M.	6	750	75%	BOS	30'>BOS	30	30	29	12:57	13:02	V.S.	V.S.	10/4/2008	P
P-136/140	2:02	M.M.	6	750	75%	9'>BOS	EOS	9	30	29	12:59	13:04	V.S.	V.S.	10/4/2008	P
P-140/141	1:40	M.M.	6	750	75%	BOS	EOS	22.5	30	29	1:06	1:11	V.S.	V.S.	10/4/2008	P
P-140/142	2:25	M.M.	6	750	75%	BOS	EOS	39	30	29	1:07	1:12	V.S.	V.S.	10/4/2008	P
P-141/142	2:10	M.M.	6	750	75%	BOS	EOS	204	30	29	1:43	1:48	V.S.	V.S.	10/4/2008	P
P-142/143	2:00	M.R.	22	750	75%	BOS	EOS	22.5	30	29	10:42	10:47	V.S.	V.S.	10/4/2008	P
P-143/145	2:35	M.M.	6	750	75%	BOS	EOS	64	30	30	10:46	10:51	V.S.	V.S.	10/4/2008	P
P-142/145	2:42	M.M.	6	750	75%	BOS	EOS	87	30	29	12:55	13:00	V.S.	V.S.	10/4/2008	P
P-142/144	2:55	M.M.	6	750	75%	BOS	EOS	150	30	29	1:08	1:13	V.S.	V.S.	10/4/2008	P
P-144/145	2:50	M.M.	6	750	75%	BOS	EOS	22.5	30	30	1:09	1:14	V.S.	V.S.	10/4/2008	P
P-144/147	3:32	M.M.	6	750	75%	BOS	EOS	150	30	29	1:11	1:16	V.S.	V.S.	10/4/2008	P
P-145/147	3:15	M.M.	6	750	75%	BOS	EOS	224	30	29	1:12	1:17	V.S.	V.S.	10/4/2008	P
P-146/147	3:11	M.M.	6	750	75%	BOS	EOS	22.5	30	29	11:41	11:46	V.S.	V.S.	10/4/2008	P
P-146/148	3:57	M.R.	22	750	75%	BOS	EOS	59	30	30	11:48	11:53	V.S.	V.S.	10/4/2008	P
P-147/148	4:10	M.R.	22	750	75%	BOS	EOS	371	30	29	12:45	12:50	V.S.	V.S.	10/4/2008	P
P-148/149	4:48	M.M.	6	750	75%	BOS	EOS	146	30	28	1:13	1:18	V.S.	V.S.	10/4/2008	P
P-148/150	4:25	M.M.	6	750	75%	BOS	EOS	282	30	29	11:11	11:16	V.S.	V.S.	10/4/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/02//2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-148/150	4:45	M.R.	22	750	75%	BOS	EOS	22.5	30	30	1:14	1:19	V.S.	V.S.	10/4/2008	P
P-150/152	5:09	M.R.	22	750	75%	BOS	EOS	44	30	29	12:00	12:05	V.S.	V.S.	10/4/2008	P
P-151/152	4:53	M.R.	22	750	75%	BOS	EOS	22.5	30	30	12:01	12:06	V.S.	V.S.	10/4/2008	P
P-150/151	5:10	M.M.	6	750	75%	BOS	EOS	160	30	29	1:15	1:20	V.S.	V.S.	10/4/2008	P
P-149/151	5:26	M.M.	6	750	75%	BOS	50'>BOS	50	30	30	1:17	1:22	V.S.	V.S.	10/4/2008	P
P-149/151	5:35	M.M.	6	750	75%	96'>BOS	EOS	96	30	29	1:16	1:21	V.S.	V.S.	10/4/2008	P
P-152/153	5:11	C.F.	19	750	75%	BOS	EOS	74	30	29	12:02	12:07	V.S.	V.S.	10/4/2008	P
P-151/153	5:21	C.F.	19	750	75%	BOS	EOS	306	30	29	1:42	1:47	V.S.	V.S.	10/4/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/4/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-153/155	7:15	M.R.	22	750	75%	BOS	90'>BOS	90	30	30	11:11	11:16	V.S.	V.S.	10/6/2008	P
P-153/155	8:04	M.R.	22	750	75%	165'>BOS	EOS	165	30	30	11:12	11:17	V.S.	V.S.	10/6/2008	P
P-153/154	8:15	M.R.	22	750	75%	BOS	EOS	112	30	30	11:16	11:21	V.S.	V.S.	10/6/2008	P
P-154/153	7:53	M.M.	6	750	75%	BOS	EOS	22.5	30	30	11:13	11:18	V.S.	V.S.	10/6/2008	P
P-154/156	8:20	M.M.	6	750	75%	BOS	EOS	112	30	30	11:15	11:20	V.S.	V.S.	10/6/2008	P
P-155/156	8:00	M.M.	6	750	75%	BOS	EOS	219	30	30	11:14	11:19	V.S.	V.S.	10/6/2008	P
P-155/157	8:44	M.R.	22	750	75%	BOS	EOS	11	30	30	11:05	11:10	V.S.	V.S.	10/6/2008	P
P-156/157	8:46	M.R.	22	750	75%	BOS	EOS	22	30	30	11:06	11:11	V.S.	V.S.	10/6/2008	P
P-156/158	9:00	M.R.	22	750	75%	BOS	EOS	345	30	30	11:07	11:12	V.S.	V.S.	10/6/2008	P
P-158/160	9:03	M.M.	6	750	75%	BOS	EOS	91	30	30	11:09	11:14	V.S.	V.S.	10/6/2008	P
P-160/161	9:44	M.R.	22	750	75%	BOS	EOS	88	30	30	11:07	11:12	V.S.	V.S.	10/6/2008	P
P-159/160	9:00	M.M.	6	750	75%	BOS	EOS	22.5	30	30	11:13	11:18	V.S.	V.S.	10/6/2008	P
P-158/159	9:14	M.M.	6	750	75%	BOS	EOS	239	30	30	12:30	12:35	V.S.	V.S.	10/6/2008	P
P-159/161	9:56	M.R.	22	750	75%	BOS	EOS	239	30	30	12:35	12:40	V.S.	V.S.	10/6/2008	P
P-161/163	9:43	M.M.	6	750	75%	BOS	EOS	129	30	30	1:00	1:05	V.S.	V.S.	10/6/2008	P
P-161/162	9:56	M.M.	6	750	75%	BOS	EOS	175	30	30	12:40	12:45	V.S.	V.S.	10/6/2008	P
P-163/164	10:30	M.R.	22	750	75%	BOS	EOS	125	30	30	1:10	1:15	V.S.	V.S.	10/6/2008	P
P-162/168	10:28	M.R.	22	750	75%	BOS	EOS	22.5	30	30	1:05	1:10	V.S.	V.S.	10/6/2008	P
P-162/164	10:41	M.R.	22	750	75%	BOS	EOS	175	30	30	12:45	12:50	V.S.	V.S.	10/6/2008	P
P-123/168	1:08	M.M.	6	750	75%	BOS	EOS	40	30	30	8:25	8:30	V.S.	V.S.	10/6/2008	P
P-168/169	1:20	M.M.	6	750	75%	BOS	EOS	48	30	30	8:40	8:45	V.S.	V.S.	10/6/2008	P
P-169/170	1:25	M.M.	6	750	75%	BOS	EOS	65	30	30	8:45	8:50	V.S.	V.S.	10/6/2008	P
P-170/171	1:35	M.M.	6	750	75%	BOS	EOS	95	30	30	9:00	9:05	V.S.	V.S.	10/6/2008	P
P-172/174	1:48	M.M.	6	750	75%	BOS	EOS	24	30	30	9:20	9:25	V.S.	V.S.	10/6/2008	P
P-171/174	1:55	M.M.	6	750	75%	BOS	EOS	24	30	30	9:15	9:20	V.S.	V.S.	10/6/2008	P
P-177/172	1:55	M.M.	6	750	75%	BOS	EOS	84	30	30	9:25	9:30	V.S.	V.S.	10/6/2008	P
P-172/173	2:05	M.M.	6	750	75%	BOS	EOS	96	30	30	9:35	9:40	V.S.	V.S.	10/6/2008	P
P-173/175	2:00	M.R.	22	750	75%	BOS	EOS	100	30	30	9:45	9:50	V.S.	V.S.	10/6/2008	P
P-175/176	1:47	M.R.	22	750	75%	BOS	EOS	102	30	30	1:05	1:10	V.S.	V.S.	10/6/2008	P
P-176/178	2:17	M.M.	6	750	75%	BOS	EOS	78	30	30	10:30	10:35	V.S.	V.S.	10/6/2008	P
P-176/178	2:21	M.M.	6	750	75%	BOS	EOS	31	30	30	10:25	10:30	V.S.	V.S.	10/6/2008	P
P-177/178	2:19	M.R.	22	750	75%	BOS	EOS	22.5	30	30	10:55	11:00	V.S.	V.S.	10/6/2008	P
P-178/179	2:30	M.M.	6	750	75%	BOS	EOS	31	30	30	11:40	11:45	V.S.	V.S.	10/6/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/4/2008
Project Location: Raleigh NC
Page: 2 of 2

LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-177/179	2:33	M.M.	6	750	75%	BOS	EOS	78	30	30	10:20	10:25	V.S.	V.S.	10/6/2008	P
P-179/180	2:47	M.M.	6	750	75%	BOS	EOS	110	30	30	10:55	11:00	V.S.	V.S.	10/6/2008	P
P-180/181	2:43	M.R.	22	750	75%	BOS	EOS	116	30	30	11:05	11:10	V.S.	V.S.	10/6/2008	P
P-164/166	10:30	M.M.	6	750	75%	BOS	EOS	128	30	30	1:15	1:20	V.S.	V.S.	10/6/2008	P
P-166/167	11:02	M.M.	6	750	75%	BOS	EOS	113	30	30	1:20	1:25	V.S.	V.S.	10/6/2008	P
P-165/166	11:00	M.R.	22	750	75%	BOS	EOS	22.5	30	30	1:21	1:26	V.S.	V.S.	10/6/2008	P
P-164/165	10:41	M.M.	6	750	75%	BOS	EOS	159	30	30	12:35	12:40	V.S.	V.S.	10/6/2008	P
P-165/167	11:12	M.M.	6	750	75%	BOS	EOS	159	30	30	1:25	1:30	V.S.	V.S.	10/6/2008	P
P-123/148	1:13	M.M.	6	750	75%	BOS	EOS	17	30	30	8:20	8:25	V.S.	V.S.	10/6/2008	P
TI P-136/154	7:45	C.P.	1	450	38%	BOS	EOS	340					V.S.	V.S.	10/6/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/6/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-166/181	7:40	M.M.	6	750	75%	BOS	EOS	22.5	30	30	11:10	11:15	V.S.	V.S.	10/6/2008	P
P-164/180	7:44	M.M.	6	750	75%	BOS	EOS	22.5	30	30	11:00	11:05	V.S.	V.S.	10/6/2008	P
P-163/179	7:48	M.M.	6	750	75%	BOS	EOS	22.5	30	30	10:50	10:55	V.S.	V.S.	10/6/2008	P
P-161/177	7:53	M.M.	6	750	75%	BOS	EOS	22.5	30	30	10:15	10:20	V.S.	V.S.	10/6/2008	P
P-160/176	7:50	M.M.	6	750	75%	BOS	EOS	24	30	29	1:10	1:15	V.S.	V.S.	10/6/2008	P
P-158/175	8:05	M.M.	6	750	75%	BOS	EOS	24	30	30	9:55	10:00	V.S.	V.S.	10/6/2008	P
P-157/173	8:07	M.M.	6	750	75%	BOS	EOS	24	30	29	9:40	9:45	V.S.	V.S.	10/6/2008	P
P-155/172	8:09	M.M.	6	750	75%	BOS	EOS	24	30	30	9:30	9:35	V.S.	V.S.	10/6/2008	P
P-153/174	8:11	M.M.	6	750	75%	BOS	EOS	3	30	30	9:10	9:15	V.S.	V.S.	10/6/2008	P
P-159/171	8:13	M.M.	6	750	75%	BOS	EOS	24	30	29	9:05	9:10	V.S.	V.S.	10/6/2008	P
P-152/170	8:15	M.M.	6	750	75%	BOS	EOS	24	30	29	8:55	9:00	V.S.	V.S.	10/6/2008	P
P-150/169	8:17	M.M.	6	750	75%	BOS	EOS	24	30	29	8:30	8:35	V.S.	V.S.	10/6/2008	P
P-150/168	8:19	M.M.	6	750	75%	BOS	EOS	6	30	29	8:35	8:40	V.S.	V.S.	10/6/2008	P
P-148/168	8:20	M.M.	6	750	75%	BOS	EOS	19	30	28	8:30	8:35	V.S.	V.S.	10/6/2008	P
TI P154/167	7:20	C.F.	1	450	38%	BOS	EOS	207					V.S.	V.S.	10/6/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/20/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
tie in north	8:15	H.V.	5	450	38%	BOS	EOS	436						V.S.	8/21/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/3/2008
Project Location: Raleigh NC
Page: 1 of 1

LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
tie in west	4:30	H.V.	5	450	38%	BOS	EOS	278						V.S.	10/4/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 8/25/2008
Project Location: Raleigh NC
Page: 1 of 1

LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
north tien in	9:00	H.V.	5	450	38%	BOS	EOS	434						V.S.	8/25/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/7/2008
Project Location: Raleigh NC
Page: 1 of 2

LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-181/182	8:37	M.R.	22	750	75%	BOS	50'>BOS	50	30	30	1:20	1:25	V.S.	V.S.	10/9/2008	P
P-181/182	8:45	M.R.	22	750	75%	72'>bos	EOS	72	30	30	1:00	1:05	V.S.	V.S.	10/9/2008	P
P-182/183	8:55	C.F.	19	750	75%	BOS	EOS	122	30	30	1:10	1:15	V.S.	V.S.	10/9/2008	P
P-182/167	8:52	M.R.	22	750	75%	BOS	EOS	22.5	30	30	1:05	1:10	V.S.	V.S.	10/9/2008	P
P-167/183	8:50	M.M.	6	750	75%	BOS	EOS	261	30	29	1:15	1:20	V.S.	V.S.	10/9/2008	P
P-183/185	9:19	C.F.	19	750	75%	BOS	EOS	170	30	29	1:25	1:30	V.S.	V.S.	10/9/2008	P
P-185/186	9:30	M.M.	6	750	75%	BOS	EOS	168	30	29	1:30	1:35	V.S.	V.S.	10/9/2008	P
P-183/184	9:35	C.F.	19	750	75%	BOS	EOS	208	30	29	3:10	3:15	V.S.	V.S.	10/9/2008	P
P-184/185	9:17	M.R.	22	750	75%	BOS	EOS	22.5	30	29	1:35	1:40	V.S.	V.S.	10/9/2008	P
P-184/186	9:46	M.M.	6	750	75%	BOS	25'>BOS	25	30	29	3:05	3:10	V.S.	V.S.	10/9/2008	P
P-184/186	9:48	M.M.	6	750	75%	183'>BOS	EOS	183	30	30	3:15	3:20	V.S.	V.S.	10/9/2008	P
P-186/188	9:55	M.R.	22	750	75%	BOS	EOS	242	30	29	3:17	3:22	V.S.	V.S.	10/9/2008	P
P-188/190	10:26	C.F.	19	750	75%	BOS	EOS	53	30	29	1:40	1:45	V.S.	V.S.	10/9/2008	P
P-189/190	10:27	M.M.	6	750	75%	BOS	EOS	22.5	30	29	1:45	1:50	V.S.	V.S.	10/9/2008	P
P-188/189	10:34	C.F.	19	750	75%	BOS	EOS	236	30	30	2:50	2:55	V.S.	V.S.	10/9/2008	P
P-186/187	10:15	M.R.	22	750	75%	BOS	EOS	58	30	29	7:06	7:11	V.S.	V.S.	10/9/2008	P
P-187/188	10:00	C.F.	19	750	75%	BOS	EOS	22.5	30	29	7:05	7:10	V.S.	V.S.	10/9/2008	P
P-187/189	10:45	C.F.	19	750	75%	BOS	EOS	58	30	30	7:10	7:15	V.S.	V.S.	10/9/2008	P
P-190/191	10:33	M.M.	6	750	75%	BOS	EOS	50	30	29	1:50	1:55	V.S.	V.S.	10/9/2008	P
P-189/191	10:37	M.M.	6	750	75%	BOS	50'>BOS	50	30	30	1:55	2:00	V.S.	V.S.	10/9/2008	P
P-189/191	10:42	M.M.	6	750	75%	244'>BOS	EOS	244	30	29	2:55	3:00	V.S.	V.S.	10/9/2008	P
P-191/193	11:05	M.R.	22	750	75%	BOS	EOS	128	30	30	2:00	2:05	V.S.	V.S.	10/9/2008	P
P-192/193	11:00	M.R.	22	750	75%	BOS	EOS	22.5	30	30	2:01	2:06	V.S.	V.S.	10/9/2008	P
P-191/192	11:15	M.R.	22	750	75%	BOS	EOS	200	30	29	3:00	3:05	V.S.	V.S.	10/9/2008	P
P-193/194	11:28	M.M.	6	750	75%	BOS	98'>BOS	98	30	29	2:15	2:20	V.S.	V.S.	10/9/2008	P
P-193/194	11:35	M.M.	6	750	75%	30'>BOS	EOS	30	30	29	2:10	2:15	V.S.	V.S.	10/9/2008	P
P-192/194	11:39	M.M.	6	750	75%	BOS	EOS	200	30	28	3:02	3:07	V.S.	V.S.	10/9/2008	P
P-194/196	12:08	M.R.	22	750	75%	BOS	EOS	20	30	30	2:25	2:30	V.S.	V.S.	10/9/2008	P
P-195/196	12:11	M.R.	22	750	75%	BOS	EOS	22.5	30	30	2:20	2:25	V.S.	V.S.	10/9/2008	P
P-194/195	11:43	C.F.	19	750	75%	BOS	EOS	285	30	30	2:45	2:50	V.S.	V.S.	10/9/2008	P
P-196/197	12:20	C.F.	19	750	75%	BOS	EOS	18	30	29	2:30	2:35	V.S.	V.S.	10/9/2008	P
P-195/197	12:22	C.F.	19	750	75%	BOS	EOS	285	30	30	2:35	2:40	V.S.	V.S.	10/9/2008	P
P-197/198	12:15	M.M.	6	750	75%	BOS	EOS	289	30	29	2:40	2:45	V.S.	V.S.	10/9/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/7/2008
Project Location: Raleigh NC
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LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-198/199	12:34	M.R.	22	750	75%	BOS	EOS	280	30	29	7:25	7:30	V.S.	V.S.	10/9/2008	P
P-199/200	12:47	M.M.	6	750	75%	BOS	EOS	271	30	29	7:26	7:31	V.S.	V.S.	10/9/2008	P
P-200/202	1:40	C.F.	19	750	75%	BOS	EOS	214	30	30	7:55	8:00	V.S.	V.S.	10/9/2008	P
P-202/203	1:50	M.R.	22	750	75%	BOS	EOS	210	30	29	7:45	7:50	V.S.	V.S.	10/9/2008	P
P-200/201	2:00	C.F.	19	750	75%	BOS	EOS	45	30	30	8:00	8:05	V.S.	V.S.	10/9/2008	P
P-201/202	1:45	M.M.	6	750	75%	BOS	EOS	22.5	30	30	8:05	8:10	V.S.	V.S.	10/9/2008	P
P-201/203	2:10	M.R.	22	750	75%	BOS	EOS	45	30	29	8:15	8:20	V.S.	V.S.	10/9/2008	P
P-203/205	2:10	M.M.	6	750	75%	BOS	EOS	115	30	30	7:48	7:53	V.S.	V.S.	10/9/2008	P
P-203/204	2:23	M.M.	6	750	75%	BOS	EOS	126	30	30	7:52	7:57	V.S.	V.S.	10/9/2008	P
P-204/205	2:08	M.M.	6	750	75%	BOS	EOS	22.5	30	29	8:30	8:35	V.S.	V.S.	10/9/2008	P
P-204/206	2:33	C.F.	19	750	75%	BOS	EOS	126	30	29	8:23	8:28	V.S.	V.S.	10/9/2008	P
P-205/206	2:30	C.F.	19	750	75%	BOS	15'>BOS	15	30	30	8:22	8:27	V.S.	V.S.	10/9/2008	P
P-205/206	2:20	C.F.	19	750	75%	100'>BOS	EOS	100	30	29	7:50	7:55	V.S.	V.S.	10/9/2008	P
P-206/207	2:30	M.R.	22	750	75%	BOS	EOS	225	30	29	8:31	8:36	V.S.	V.S.	10/9/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/9/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-207	8:10	C.F.	1	450	380%	BOS	EOS	420						VS	10/9/2008	P
							EOS									

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/15/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-207/208	8:05	M.M.	6	750	75%	BOS	EOS	219	30	30	8:01	8:06	V.S.	V.S.	10/16/2008	P
P-208/209	8:15	M.R.	22	750	75%	BOS	EOS	218	30	29	8:02	8:07	V.S.	V.S.	10/16/2008	P
P-209/254	4:17	M.M.	6	750	75%	BOS	EOS	23	30	30	8:10	8:15	V.S.	V.S.	10/16/2008	P
P-209/211	8:45	M.M.	6	750	75%	BOS	EOS	30	30	30	8:15	8:20	V.S.	V.S.	10/16/2008	P
P-210/211	8:35	M.M.	6	750	75%	BOS	EOS	22.5	30	30	8:20	8:25	V.S.	V.S.	10/16/2008	P
P-209/210	8:50	M.M.	6	750	75%	BOS	EOS	144	30	29	8:25	8:30	V.S.	V.S.	10/16/2008	P
P-211/212	9:06	M.M.	6	750	75%	BOS	EOS	26	30	30	8:21	8:26	V.S.	V.S.	10/16/2008	P
P-210/212	9:10	M.M.	6	750	75%	BOS	EOS	144	30	29	8:30	8:35	V.S.	V.S.	10/16/2008	P
P-212/213	8:55	C.F.	19	750	75%	BOS	EOS	165	30	29	8:35	8:40	V.S.	V.S.	10/16/2008	P
P-213/214	8:45	M.R.	22	750	75%	BOS	EOS	150	30	29	8:40	8:45	V.S.	V.S.	10/16/2008	P
P-214/215	9:15	C.F.	19	750	75%	BOS	EOS	77	30	30	9:45	9:50	V.S.	V.S.	10/16/2008	P
P-215/217	9:13	M.R.	22	750	75%	BOS	EOS	73	30	30	9:00	9:05	V.S.	V.S.	10/16/2008	P
P-214/216	9:24	C.F.	19	750	75%	BOS	EOS	68	30	30	8:50	8:55	V.S.	V.S.	10/16/2008	P
P-215/216	9:09	M.R.	22	750	75%	BOS	EOS	22.8	30	30	8:55	9:00	V.S.	V.S.	10/16/2008	P
P-216/217	9:20	M.R.	22	750	75%	BOS	EOS	68	30	30	9:05	9:10	V.S.	V.S.	10/16/2008	P
P-217/218	9:33	M.M.	6	750	75%	BOS	EOS	125	30	29	9:15	9:20	V.S.	V.S.	10/16/2008	P
P-218/219	9:35	M.R.	22	750	75%	BOS	15'>EOS	15	30	30	9:20	9:25	V.S.	V.S.	10/16/2008	P
P-218/219	9:37	M.R.	22	750	75%	110'>BOS	EOS	110	30	29	9:26	9:31	V.S.	V.S.	10/16/2008	P
P-219/220	9:55	M.M.	6	750	75%	BOS	EOS	243	30	29	5:05	5:10	V.S.	V.S.	10/16/2008	P
P-220/221	10:00	M.R.	22	750	75%	BOS	EOS	230	30	29	5:00	5:05	V.S.	V.S.	10/16/2008	P
P-221/223	10:22	M.R.	22	750	75%	BOS	EOS	102	30	29	4:55	5:00	V.S.	V.S.	10/16/2008	P
P-222/223	10:25	M.M.	6	750	75%	BOS	EOS	22.5	30	29	4:05	4:10	V.S.	V.S.	10/16/2008	P
P-221/222	10:30	M.R.	22	750	75%	BOS	EOS	117	30	29	4:50	4:55	V.S.	V.S.	10/16/2008	P
P-223/230	2:00	C.F.	19	750	75%	BOS	EOS	24	30	29	3:45	3:50	V.S.	V.S.	10/16/2008	P
P-223/229	2:02	C.F.	19	750	75%	BOS	EOS	25	30	29	3:50	3:55	V.S.	V.S.	10/16/2008	P
P-223/224	2:05	C.F.	19	750	75%	BOS	EOS	24	30	29	4:01	4:06	V.S.	V.S.	10/16/2008	P
P-222/225	2:08	C.F.	19	750	75%	BOS	EOS	24	30	29	4:11	4:16	V.S.	V.S.	10/16/2008	P
P-222/226	2:11	C.F.	19	750	75%	BOS	EOS	24	30	29	4:30	4:35	V.S.	V.S.	10/16/2008	P
P-222/227	2:14	C.F.	19	750	75%	BOS	EOS	25	30	29	4:40	4:45	V.S.	V.S.	10/16/2008	P
P-222/228	2:17	C.F.	19	750	75%	BOS	EOS	22	30	29	4:45	4:50	V.S.	V.S.	10/16/2008	P
P-227/228	10:56	M.M.	6	750	75%	BOS	EOS	22	30	30	4:46	4:51	V.S.	V.S.	10/16/2008	P
P-226/227	10:59	M.M.	6	750	75%	BOS	EOS	40	30	29	4:35	4:40	V.S.	V.S.	10/16/2008	P
P-225/226	10:49	M.M.	6	750	75%	BOS	EOS	67	30	29	4:25	4:30	V.S.	V.S.	10/16/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/15/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-224/225	10:35	M.M.	6	750	75%	BOS	EOS	89	30	29	4:21	4:26	V.S.	V.S.	10/16/2008	P
P-224/229	10:58	M.R.	22	750	75%	BOS	EOS	110	30	29	4:16	4:21	V.S.	V.S.	10/16/2008	P
P-229/230	11:17	M.R.	22	750	75%	BOS	EOS	130	30	30	11:58	12:03	V.S.	V.S.	10/16/2008	P
P-230/231	11:27	M.R.	22	750	75%	BOS	EOS	154	30	30	11:51	11:56	V.S.	V.S.	10/16/2008	P
P-231/232	11:35	M.M.	6	750	75%	BOS	EOS	110	30	30	11:27	11:32	V.S.	V.S.	10/16/2008	P
P-211/255	4:10	C.F.	19	750	75%	BOS	EOS	15	30	29	6:05	6:10	V.S.	V.S.	10/16/2008	P
P-211/253	4:11	C.F.	19	750	75%	BOS	EOS	7	30	29	6:00	6:05	V.S.	V.S.	10/16/2008	P
P-212/253	4:12	C.F.	19	750	75%	BOS	EOS	18	30	29	5:01	5:06	V.S.	V.S.	10/16/2008	P
P-213/251	4:14	C.F.	19	750	75%	BOS	EOS	22	30	29	5:46	5:51	V.S.	V.S.	10/16/2008	P
P-214/250	4:16	C.F.	19	750	75%	BOS	EOS	22	30	29	5:42	5:47	V.S.	V.S.	10/16/2008	P
P-215/249	4:19	C.F.	19	750	75%	BOS	EOS	21	30	29	5:35	5:40	V.S.	V.S.	10/16/2008	P
P-217/247	4:21	C.F.	19	750	75%	BOS	EOS	20	30	30	9:10	9:15	V.S.	V.S.	10/16/2008	P
P-218/247	4:12	C.F.	19	750	75%	BOS	EOS	6	30	30	5:25	5:30	V.S.	V.S.	10/16/2008	P
P-218/246	4:24	C.F.	19	750	75%	BOS	EOS	17	30	29	5:20	5:25	V.S.	V.S.	10/16/2008	P
P-219/246	4:26	C.F.	19	750	75%	BOS	EOS	9	30	29	5:21	5:26	V.S.	V.S.	10/16/2008	P
P-219/245	4:23	C.F.	19	750	75%	BOS	EOS	13	30	29	5:15	5:20	V.S.	V.S.	10/16/2008	P
P-220/245	4:29	C.F.	19	750	75%	BOS	EOS	10	30	29	5:16	5:21	V.S.	V.S.	10/16/2008	P
P-220/244	4:30	C.F.	19	750	75%	BOS	EOS	11	30	30	5:10	5:15	V.S.	V.S.	10/16/2008	P
P-221/244	4:32	C.F.	19	750	75%	BOS	EOS	6	30	29	5:11	5:16	V.S.	V.S.	10/16/2008	P
P-221/238	4:33	C.F.	19	750	75%	BOS	EOS	17	30	29	5:12	5:17	V.S.	V.S.	10/16/2008	P
P-223/238	4:35	C.F.	19	750	75%	BOS	EOS	21	30	30	11:45	11:50	V.S.	V.S.	10/16/2008	P
P-231/238	4:37	C.F.	19	750	75%	BOS	EOS	13	30	30	11:39	11:44	V.S.	V.S.	10/16/2008	P
P-231/233	4:38	C.F.	19	750	75%	BOS	EOS	45	30	29	11:31	11:36	V.S.	V.S.	10/16/2008	P
P-232/233	4:40	C.F.	19	750	75%	BOS	EOS	12	30	30	11:22	11:27	V.S.	V.S.	10/16/2008	P
P-254/255	4:40	M.M.	6	750	75%	BOS	EOS	100	30	30	7:50	7:55	V.S.	V.S.	10/16/2008	P
P-253/255	4:38	M.M.	6	750	75%	BOS	EOS	100	30	29	8:05	8:10	V.S.	V.S.	10/16/2008	P
P-253/254	3:33	M.M.	6	750	75%	BOS	EOS	143	30	29	7:50	7:55	V.S.	V.S.	10/16/2008	P
P-251/253	3:24	M.R.	22	750	75%	BOS	EOS	23	30	30	7:45	7:50	V.S.	V.S.	10/16/2008	P
P-252/253	3:27	M.R.	22	750	75%	BOS	EOS	215	30	30	7:43	7:48	V.S.	V.S.	10/16/2008	P
P-251/252	3:00	M.M.	6	750	75%	BOS	EOS	22.5	30	30	7:36	7:41	V.S.	V.S.	10/16/2008	P
P-250/251	3:06	M.M.	6	750	75%	BOS	EOS	10	30	30	7:38	7:43	V.S.	V.S.	10/16/2008	P
P-250/252	3:08	M.M.	6	750	75%	BOS	EOS	215	30	29	7:32	7:37	V.S.	V.S.	10/16/2008	P
P-249/250	2:53	M.R.	22	750	75%	BOS	EOS	213	30	28	7:28	7:33	V.S.	V.S.	10/16/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/15/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-247/249	2:27	M.M.	6	750	75%	BOS	EOS	64	30	30	7:17	7:22	V.S.	V.S.	10/16/2008	P
P-247/248	2:20	M.M.	6	750	75%	BOS	EOS	22.5	30	30	7:03	7:08	V.S.	V.S.	10/16/2008	P
P-248/249	2:35	M.M.	6	750	75%	BOS	EOS	134	30	29	7:11	7:16	V.S.	V.S.	10/16/2008	P
P-246/247	2:23	M.R.	22	750	75%	BOS	EOS	57	30	29	7:21	7:26	V.S.	V.S.	10/16/2008	P
P-246/248	2:30	M.R.	22	750	75%	BOS	EOS	134	30	29	7:00	7:05	V.S.	V.S.	10/16/2008	P
P-245/246	1:59	M.M.	6	750	75%	BOS	EOS	175	30	28	7:26	7:31	V.S.	V.S.	10/16/2008	P
P-244/245	1:50	M.R.	22	750	75%	BOS	EOS	165	30	29	7:32	7:37	V.S.	V.S.	10/16/2008	P
P-243/244	1:33	M.M.	6	750	75%	BOS	EOS	150	30	29	9:36	9:41	V.S.	V.S.	10/16/2008	P
P-239/243	12:38	M.R.	22	750	75%	BOS	EOS	104	30	30	9:45	9:50	V.S.	V.S.	10/16/2008	P
P-239/240	12:25	M.R.	22	750	75%	BOS	EOS	45	30	30	10:00	10:05	V.S.	V.S.	10/16/2008	P
P-232/234	4:41	C.F.	19	750	75%	BOS	EOS	47	30	30	11:09	11:14	V.S.	V.S.	10/16/2008	P
P-232/237	3:32	C.F.	19	750	75%	BOS	EOS	43	30	30	11:05	11:10	V.S.	V.S.	10/16/2008	P
P-236/237	12:10	M.M.	6	750	75%	BOS	EOS	43	30	29	11:50	11:55	V.S.	V.S.	10/16/2008	P
P-235/236	11:59	M.M.	6	750	75%	BOS	EOS	43	30	29	11:45	11:50	V.S.	V.S.	10/16/2008	P
P-234/235	1:53	M.M.	6	750	75%	BOS	EOS	22	30	30	10:40	10:45	V.S.	V.S.	10/16/2008	P
P-233/234	11:54	M.R.	22	750	75%	BOS	EOS	47	30	30	11:16	11:21	V.S.	V.S.	10/16/2008	P
P-233/235	12:00	M.R.	22	750	75%	BOS	EOS	43	30	30	11:35	11:40	V.S.	V.S.	10/16/2008	P
P-233/238	12:07	M.R.	22	750	75%	BOS	EOS	158	30	29	11:36	11:41	V.S.	V.S.	10/16/2008	P
P-238/244	1:05	C.F.	19	750	75%	BOS	EOS	10	30	30	9:32	9:37	V.S.	V.S.	10/16/2008	P
P-238/243	1:06	C.F.	19	750	75%	BOS	EOS	47	30	29	9:41	9:46	V.S.	V.S.	10/16/2008	P
P-238/239	1:11	C.F.	19	750	75%	BOS	EOS	47	30	29	9:55	10:00	V.S.	V.S.	10/16/2008	P
P-238/240	1:15	C.F.	19	750	75%	BOS	EOS	46	30	29	10:05	10:10	V.S.	V.S.	10/16/2008	P
P-238/242	1:19	C.F.	19	750	75%	BOS	EOS	23	30	30	10:30	10:35	V.S.	V.S.	10/16/2008	P
P-241/242	12:35	M.M.	6	750	75%	BOS	EOS	24	30	30	10:25	10:30	V.S.	V.S.	10/16/2008	P
P-240/241	12:25	M.M.	6	750	75%	BOS	EOS	22	30	30	10:15	10:20	V.S.	V.S.	10/16/2008	P
P-239/240	12:30	M.M.	6	750	75%	BOS	EOS	24	30	30	10:10	10:15	V.S.	V.S.	10/16/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 10/16/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-207 tie in	8:40	C.F.	1	450	380%	BOS	EOS	335						VS	10/16/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/6/2008
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-1/278	1:44	M.M.	6	750	75%	BOS	EOS	290	30	30	9:26	9:31	VS	VS	11/11/2008	P
P-278/279	2:20	M.R.	22	750	75%	BOS	EOS	25	30	30	3:00	3:05	VS	VS	11/11/2008	P
P-279/280	1:50	M.R.	22	750	75%	BOS	EOS	22.5	30	30	8:54	8:59	VS	VS	11/11/2008	P
P-278/280	2:25	M.R.	22	750	75%	BOS	EOS	28	30	30	9:25	9:30	VS	VS	11/11/2008	P
P-280/281	2:03	M.R.	22	750	75%	BOS	EOS	22.5	30	30	9:02	9:07	VS	VS	11/11/2008	P
P-278/281	2:30	M.R.	22	750	75%	BOS	EOS	179	30	28	9:24	9:29	VS	VS	11/11/2008	P
P-277/278	1:20	M.R.	22	750	75%	BOS	EOS	22.5	30	30	9:22	9:27	VS	VS	11/11/2008	P
P-1/277	2:00	M.R.	22	750	75%	BOS	EOS	103	30	29	9:20	9:25	VS	VS	11/11/2008	P
P-277/281	2:45	M.R.	22	750	75%	BOS	EOS	103	30	29	9:19	9:24	VS	VS	11/11/2008	P
P-281/282	2:40	M.M.	6	750	75%	BOS	45'>BOS	45	30	28	9:18	9:23	VS	VS	11/11/2008	P
P-281/282	2:45	M.M.	6	750	75%	134'>BOS	EOS	134	30	30	9:05	9:10	VS	VS	11/11/2008	P
P-281/282	2:25	M.M.	6	750	75%	103'>BOS	EOS	103	30	30	9:21	9:26	VS	VS	11/11/2008	P
P-280/282	2:37	M.M.	6	750	75%	BOS	EOS	28	30	29	9:01	9:06	VS	VS	11/11/2008	P
P-282/283	2:45	M.R.	22	750	75%	BOS	EOS	146	30	28	9:17	9:22	VS	VS	11/11/2008	P
P-283/284	3:10	M.R.	22	750	75%	BOS	EOS	30	30	28	9:06	9:11	VS	VS	11/11/2008	P
P-284/285	3:04	M.M.	6	750	75%	BOS	EOS	22.5	30	30	9:07	9:12	VS	VS	11/11/2008	P
P-283/285	3:15	M.M.	6	750	75%	BOS	EOS	168	30	28	9:16	9:21	VS	VS	11/11/2008	P
P-285/286	3:30	M.R.	22	750	75%	BOS	EOS	168	30	30	9:15	9:20	VS	VS	11/11/2008	P
P-286/287	3:44	M.M.	6	750	75%	BOS	EOS	94	30	29	9:08	9:13	VS	VS	11/11/2008	P
P-286/288	3:50	M.M.	6	750	75%	BOS	EOS	57	30	29	9:14	9:19	VS	VS	11/11/2008	P
P-287/288	3:35	M.M.	6	750	75%	BOS	EOS	22.5	30	30	9:09	9:14	VS	VS	11/11/2008	P
P-288/289	4:03	M.M.	6	750	75%	BOS	EOS	27	30	29	9:09	9:14	VS	VS	11/11/2008	P
P-289/290	4:00	M.M.	6	750	75%	BOS	EOS	22.5	30	30	9:12	9:17	VS	VS	11/11/2008	P
P-278/260	4:05	M.R.	22	750	75%	BOS	EOS	32	30	30	9:27	9:32	VS	VS	11/11/2008	P
P-260/279	4:07	M.R.	22	750	75%	BOS	EOS	25	30	30	9:28	9:33	VS	VS	11/11/2008	P
P-260/261	9:30	M.R.	22	750	75%	BOS	EOS	22.5	30	30	9:29	9:34	VS	VS	11/11/2008	P
P-261/279	4:10	M.R.	22	750	75%	BOS	EOS	22	30	30	9:30	9:35	VS	VS	11/11/2008	P
P-261/282	4:12	M.R.	22	750	75%	BOS	EOS	47	30	29	9:31	9:36	VS	VS	11/11/2008	P
P-261/283	4:17	M.R.	22	750	75%	BOS	EOS	48	30	30	9:33	9:38	VS	VS	11/11/2008	P
P-261/284	4:22	M.R.	22	750	75%	BOS	EOS	44	30	29	9:34	9:39	VS	VS	11/11/2008	P
P-261/286	4:28	M.R.	22	750	75%	BOS	EOS	50	30	28	9:35	9:40	VS	VS	11/11/2008	P
P-261/287	4:33	M.R.	22	750	75%	BOS	EOS	49	30	30	9:37	9:42	VS	VS	11/11/2008	P
P-261/289	4:39	M.R.	22	750	75%	BOS	EOS	43	30	29	9:38	9:43	VS	VS	11/11/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/6/2008
Project Location: Raleigh NC
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LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-261/290	4:44	M.R.	22	750	75%	BOS	EOS	18	30	28	9:39	9:44	VS	VS	11/11/2008	P
P-259/260	9:33	M.R.	22	750	75%	BOS	EOS	20	30	30	9:49	9:54	VS	VS	11/11/2008	P
P-259/261	9:36	M.R.	22	750	75%	BOS	EOS	329	30	28	9:48	9:53	VS	VS	11/11/2008	P
P-258/259	8:55	M.M.	6	750	75%	BOS	EOS	203	30	29	9:47	9:52	VS	VS	11/11/2008	P
P-257/259	9:15	M.M.	6	750	75%	BOS	EOS	101	30	30	9:44	9:49	VS	VS	11/11/2008	P
P-257/258	8:46	M.M.	6	750	75%	BOS	EOS	22.5	30	30	9:42	9:47	VS	VS	11/11/2008	P
P-256/257	8:30	M.M.	6	750	75%	BOS	EOS	101	30	28	9:43	9:48	VS	VS	11/11/2008	P
P-256/258	8:40	M.R.	22	750	75%	BOS	EOS	1920	30	29	9:46	9:51	VS	VS	11/11/2008	P
P-256/263	10:15	M.R.	22	750	75%	BOS	EOS	147	30	30	12:19	12:24	VS	VS	11/11/2008	P
P-256/262	9:53	M.M.	6	750	75%	BOS	EOS	263	30	29	11:53	11:58	VS	VS	11/11/2008	P
P-256 tiein	4:23	M.M.	6	750	75%	BOS	EOS	215	30	28	11:55	12:00	VS	VS	11/11/2008	P
P-262/263	10:34	M.M.	6	750	75%	BOS	EOS	22.5	30	30	11:52	11:57	VS	VS	11/11/2008	P
P-263/264	10:45	M.M.	6	750	75%	BOS	EOS	57	30	28	11:47	11:52	VS	VS	11/11/2008	P
P-263/265	10:50	M.M.	6	750	75%	BOS	EOS	59	30	29	11:51	11:56	VS	VS	11/11/2008	P
P-262/265	10:58	M.M.	6	750	75%	BOS	EOS	263	30	29	11:50	11:55	VS	VS	11/11/2008	P
P-264/265	10:43	M.M.	6	750	75%	BOS	EOS	22.5	30	30	10:05	10:10	VS	VS	11/11/2008	P
P-264/267	11:05	M.R.	22	750	75%	BOS	EOS	20	30	29	1:04	1:09	VS	VS	11/11/2008	P
P-265/267	11:08	M.R.	22	750	75%	BOS	EOS	259	30	29	11:46	11:51	VS	VS	11/11/2008	P
P-265/266	11:23	M.R.	22	750	75%	BOS	15'>BOS	15	30	30	12:15	12:20	VS	VS	11/11/2008	P
P-265/266	11:25	M.R.	22	750	75%	BOS	48'>BOS	48	30	29	12:17	12:22	VS	VS	11/11/2008	P
P-266/267	11:28	M.M.	6	750	75%	BOS	EOS	22.5	30	30	12:16	12:21	VS	VS	11/11/2008	P
P-267/268	11:43	M.M.	6	750	75%	BOS	EOS	67	30	29	11:40	11:45	VS	VS	11/11/2008	P
P-267/269	11:50	M.M.	6	750	75%	BOS	EOS	158	30	28	11:39	11:44	VS	VS	11/11/2008	P
P-268/269	11:38	M.M.	6	750	75%	BOS	EOS	22.5	30	30	10:10	10:15	VS	VS	11/11/2008	P
P-266/269	12:05	M.M.	6	750	75%	BOS	EOS	63	30	29	12:50	12:55	VS	VS	11/11/2008	P
P-269/270	12:00	M.R.	22	750	75%	BOS	EOS	63	30	29	11:34	11:39	VS	VS	11/11/2008	P
P-268/271	11:45	M.R.	22	750	75%	BOS	EOS	20	30	30	1:09	1:14	VS	VS	11/11/2008	P
P-269/271	11:47	M.R.	22	750	75%	BOS	EOS	158	30	29	11:38	11:43	VS	VS	11/11/2008	P
270/271	11:42	M.R.	22	750	75%	BOS	EOS	22.5	30	30	11:33	11:38	VS	VS	11/11/2008	P
P-271/272	12:24	M.M.	6	750	75%	BOS	EOS	55	30	29	11:10	11:15	VS	VS	11/11/2008	P
P-272/273	12:21	M.M.	6	750	75%	BOS	EOS	22.5	30	30	11:14	11:19	VS	VS	11/11/2008	P
P-271/273	12:28	M.M.	6	750	75%	BOS	EOS	57	30	30	11:36	11:41	VS	VS	11/11/2008	P
P-270/273	12:10	M.M.	6	750	75%	BOS	EOS	60	30	30	11:31	11:36	VS	VS	11/11/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/6/2008
Project Location: Raleigh NC
Page: 3 of 3

LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-278/274	1:00	M.R.	22	750	75%	BOS	EOS	15	30	29	11:12	11:17	VS	VS	11/11/2008	P
P-273/274	1:02	M.R.	22	750	75%	BOS	50'>BOS	50	30	30	11:35	11:40	VS	VS	11/11/2008	P
P-273/274	1:10	M.R.	22	750	75%	BOS	70'>EOS	70	30	29	11:30	11:35	VS	VS	11/11/2008	P
P-274/275	1:20	M.R.	22	750	75%	BOS	35'>BOS	35	30	30	11:19	11:24	VS	VS	11/11/2008	P
P-274/275	1:25	M.R.	22	750	75%	BOS	30'>EOS	30	30	30	11:18	11:23	VS	VS	11/11/2008	P
P-275/276	1:10	M.M.	6	750	75%	BOS	EOS	25	30	30	11:16	11:21	VS	VS	11/11/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake — LLDPE
Weld Date: 11/7/2008
Project Location: Raleigh NC — 40 mil.
Page: 1 of 3

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-260/306	4:40	M.R.	22	750	75%	BOS	EOS	13	30	30	9:50	9:55	VS	VS	11/11/2008	P
P-260/305	4:42	M.R.	22	750	75%	BOS	EOS	25	30	29	9:51	9:56	VS	VS	11/11/2008	P
P-259/305	4:45	M.R.	22	750	75%	BOS	EOS	40	30	30	9:53	9:58	VS	VS	11/11/2008	P
P-258/305	4:49	M.R.	22	750	75%	BOS	EOS	11	30	30	9:56	10:01	VS	VS	11/11/2008	P
P-258/301	4:50	M.R.	22	750	75%	BOS	EOS	35	30	30	9:57	10:02	VS	VS	11/11/2008	P
P-256/301	4:53	M.R.	22	750	75%	BOS	EOS	49	30	29	10:00	10:05	VS	VS	11/11/2008	P
P-263/299	4:57	M.R.	22	750	75%	BOS	EOS	48	30	28	10:02	10:07	VS	VS	11/11/2008	P
P-264/297	5:05	M.R.	22	750	75%	BOS	EOS	34	30	29	10:03	10:08	VS	VS	11/11/2008	P
P-267/297	5:00	C.F.	19	750	75%	BOS	EOS	45	30	30	4:00	4:05	VS	VS	11/11/2008	P
P-268/295	5:06	C.F.	19	750	75%	BOS	EOS	49	30	29	10:07	10:12	VS	VS	11/11/2008	P
P-271/295	5:10	C.F.	19	750	75%	BOS	EOS	22	30	30	10:08	10:13	VS	VS	11/11/2008	P
P-271/293	5:13	C.F.	19	750	75%	BOS	EOS	21	30	30	11:00	11:05	VS	VS	11/11/2008	P
P-271/292	5:16	C.F.	19	750	75%	BOS	EOS	5	30	30	11:09	11:14	VS	VS	11/11/2008	P
P-272/292	5:17	C.F.	19	750	75%	BOS	EOS	47	30	28	11:11	11:16	VS	VS	11/11/2008	P
P-274/291	5:22	C.F.	19	750	75%	BOS	EOS	45	30	29	11:13	11:18	VS	VS	11/11/2008	P
P-275/291	5:28	C.F.	19	750	75%	BOS	EOS	45	30	29	11:15	11:20	VS	VS	11/11/2008	P
P-276/291	5:34	C.F.	19	750	75%	BOS	EOS	25	30	30	11:17	11:22	VS	VS	11/11/2008	P
P-291/292	8:25	M.R.	22	750	75%	BOS	EOS	110	30	29	12:21	12:26	VS	VS	11/11/2008	P
P-292/294	8:40	M.M.	6	750	75%	BOS	EOS	166	30	28	12:30	12:35	VS	VS	11/11/2008	P
P-293/294	8:37	M.M.	6	750	75%	BOS	EOS	21	30	30	11:07	11:12	VS	VS	11/11/2008	P
P-292/293	8:15	M.M.	6	750	75%	BOS	EOS	6	30	30	11:08	11:13	VS	VS	11/11/2008	P
P-294/295	8:33	M.M.	6	750	75%	BOS	EOS	22.5	30	29	11:06	11:11	VS	VS	11/11/2008	P
P-295/296	8:45	M.R.	22	750	75%	BOS	EOS	72	30	30	12:32	12:37	VS	VS	11/11/2008	P
P-294296	8:52	M.R.	22	750	75%	BOS	EOS	192	30	29	12:31	12:36	VS	VS	11/11/2008	P
P-286/297	9:30	M.R.	22	750	75%	BOS	EOS	22.5	30	29	10:06	10:11	VS	VS	11/11/2008	P
P-296/298	9:05	M.M.	6	750	75%	BOS	EOS	275	30	30	12:37	12:42	VS	VS	11/11/2008	P
P-297/298	9:33	M.R.	22	750	75%	BOS	EOS	79	30	30	12:38	12:43	VS	VS	11/11/2008	P
P-298/299	9:40	M.R.	22	750	75%	BOS	EOS	22.5	30	29	4:09	4:14	VS	VS	11/11/2008	P
P-299/301	10:00	M.R.	22	750	75%	BOS	EOS	62	30	30	4:01	4:06	VS	VS	11/11/2008	P
P-298/301	10:10	M.R.	22	750	75%	BOS	EOS	200	30	28	12:39	12:44	VS	VS	11/11/2008	P
P-298/300	10:30	M.R.	22	750	75%	BOS	EOS	153	30	29	2:01	2:06	VS	VS	11/11/2008	P
P-300/301	9:40	M.M.	6	750	75%	BOS	EOS	22.5	30	30	2:02	2:07	VS	VS	11/11/2008	P
P-300/302	10:37	M.M.	6	750	75%	BOS	EOS	153	30	30	2:05	2:10	VS	VS	11/11/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/7/2008
Project Location: Raleigh NC
Page: 2 of 3

LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-301/302	10:24	M.M.	6	750	75%	BOS	EOS	95	30	30	2:01	2:06	VS	VS	11/11/2008	P
P-301/303	10:05	M.M.	6	750	75%	BOS	EOS	250	30	29	12:40	12:45	VS	VS	11/11/2008	P
P-303/305	11:15	M.M.	6	750	75%	BOS	EOS	22.5	30	30	9:55	10:00	VS	VS	11/11/2008	P
P-305/306	11:18	M.M.	6	750	75%	BOS	EOS	83	30	30	4:46	4:51	VS	VS	11/11/2008	P
P-302/306	11:27	M.M.	6	750	75%	BOS	EOS	155	30	30	12:41	12:46	VS	VS	11/11/2008	P
P-304/306	11:10	M.M.	6	750	75%	BOS	EOS	22.5	30	30	12:42	12:47	VS	VS	11/11/2008	P
P-303/304	11:43	M.M.	6	750	75%	BOS	EOS	97	30	30	12:43	12:48	VS	VS	11/11/2008	P
P-302/303	10:35	M.M.	6	750	75%	BOS	EOS	22.5	30	30	2:00	2:05	VS	VS	11/11/2008	P
P-302/304	11:55	M.M.	6	750	75%	BOS	EOS	244	30	28	2:03	2:08	VS	VS	11/11/2008	P
P-306/307	11:07	M.R.	22	750	75%	BOS	EOS	113	30	30	3:31	3:36	VS	VS	11/11/2008	P
P-306/308	11:17	M.R.	22	750	75%	BOS	EOS	100	30	29	3:22	3:27	VS	VS	11/11/2008	P
P-308/309	11:00	M.R.	22	750	75%	BOS	EOS	22.5	30	30	3:21	3:26	VS	VS	11/11/2008	P
P-306/309	11:28	M.R.	22	750	75%	BOS	EOS	12	30	30	3:20	3:25	VS	VS	11/11/2008	P
P-306/311	11:30	M.R.	22	750	75%	BOS	EOS	50	30	30	3:19	3:24	VS	VS	11/11/2008	P
P-304/311	11:36	M.R.	22	750	75%	BOS	EOS	62	30	30	3:18	3:23	VS	VS	11/11/2008	P
P-304/312	11:46	M.R.	22	750	75%	BOS	EOS	115	30	29	3:29	3:34	VS	VS	11/11/2008	P
P-312/319	1:17	M.R.	22	750	75%	BOS	EOS	22.5	30	28	2:39	2:44	VS	VS	11/11/2008	P
P-304/314	11:51	M.R.	22	750	75%	BOS	EOS	113	30	29	2:32	2:37	VS	VS	11/11/2008	P
P-304/315	12:05	M.R.	22	750	75%	BOS	EOS	34	30	30	2:15	2:20	VS	VS	11/11/2008	P
P-314/315	1:55	M.M.	6	750	75%	BOS	EOS	34	30	30	2:16	2:21	VS	VS	11/11/2008	P
P-314/313	1:39	M.M.	6	750	75%	BOS	EOS	143	30	30	2:33	2:38	VS	VS	11/11/2008	P
P-311/312	1:05	M.R.	22	750	75%	BOS	EOS	49	30	29	3:06	3:11	VS	VS	11/11/2008	P
P-310/311	12:19	M.M.	6	750	75%	BOS	EOS	22.5	30	29	3:00	3:05	VS	VS	11/11/2008	P
P-310/312	1:12	M.R.	22	750	75%	BOS	EOS	68	30	29	2:55	3:00	VS	VS	11/11/2008	P
P-310/313	1:21	M.R.	22	750	75%	BOS	72'>BOS	72	30	29	2:45	2:50	VS	VS	11/11/2008	P
P-310/313	1:32	M.R.	22	750	75%	BOS	75'>EOS	75	30	30	2:18	2:23	VS	VS	11/11/2008	P
P-309/310	1:20	M.M.	6	750	75%	BOS	EOS	210	30	29	3:09	3:14	VS	VS	11/11/2008	P
P-309/311	1:00	M.M.	6	750	75%	BOS	EOS	160	30	28	3:16	3:21	VS	VS	11/11/2008	P
P-307/308	12:40	M.R.	22	750	75%	BOS	EOS	99	30	30	2:23	2:28	VS	VS	11/11/2008	P
P-307/309	12:51	M.R.	22	750	75%	BOS	142'>BOS	142	30	28	3:17	3:22	VS	VS	11/11/2008	P
P-307/309	1:08	M.R.	22	750	75%	BOS	245'>EOS	245	30	30	3:15	3:20	VS	VS	11/11/2008	P
P-307/316	1:57	C.F.	19	750	75%	BOS	EOS	594	30	28	3:30	3:35	VS	VS	11/11/2008	P
P-316/317	2:10	M.M.	6	750	75%	BOS	168'>BOS	168	30	30	3:33	3:38	VS	VS	11/11/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/7/2008
Project Location: Raleigh NC
Page: 3 of 3

LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-316/317	2:31	M.M.	6	750	75%	BOS	25'>BOS	25	30	30	3:24	3:29	VS	VS	11/11/2008	P
P-316/317	2:34	M.M.	6	750	75%	BOS	401'>EOS	401	30	29	3:40	3:45	VS	VS	11/11/2008	P
P-317/318	3:00	C.F.	19	750	75%	BOS	EOS	594	30	29	4:01	4:06	VS	VS	11/11/2008	P
P-318/319	3:15	M.M.	6	750	75%	BOS	EOS	594	30	28	3:46	3:51	VS	VS	11/11/2008	P
P-319/320	3:45	M.R.	22	750	75%	BOS	EOS	594	30	28	3:51	3:56	VS	VS	11/11/2008	P
P-320/321	4:15	M.M.	6	750	75%	BOS	EOS	594	30	28	3:57	4:02	VS	VS	11/11/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/10/2008
Project Location: Raleigh NC
Page: 1 of 1

LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-264/299	9:55	M.M.	5	500	40%	BOS	EOS	18						VS	11/11/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/19/2008
Project Location: Raleigh NC
Page: 1 of 2

LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-321/322	9:45	M.R.	22	800	70%	BOS	EOS	594	30	28	7:10	7:15	VS	VS	11/20/2008	P
P-322/323	7:30	M.R.	22	800	70%	BOS	358'>BOS	358	30	28	7:15	7:20	VS	VS	11/20/2008	P
P-322/323	7:55	M.R.	22	800	70%	BOS	20'>BOS	20	30	30	7:03	7:08	VS	VS	11/20/2008	P
P-322/323	7:58	M.R.	22	800	70%	BOS	216'>BOS	216	30	29	7:02	7:07	VS	VS	11/20/2008	P
P-323/324	7:45	M.M.	6	800	70%	BOS	EOS	594	30	28	7:16	7:21	VS	VS	11/20/2008	P
P-324/325	8:13	C.F.	19	800	70%	BOS	177'>BOS	177	30	28	7:17	7:22	VS	VS	11/20/2008	P
P-324/325	8:35	C.F.	19	800	70%	BOS	417'>BOS	417	30	28	7:08	7:13	VS	VS	11/20/2008	P
P-325/326	9:00	M.M.	6	800	70%	BOS	EOS	594	30	28	7:27	7:32	VS	VS	11/20/2008	P
P-326/327	9:33	C.F.	19	800	70%	BOS	EOS	594	30	29	7:18	7:23	VS	VS	11/20/2008	P
P-327/328	10:23	M.M.	6	800	70%	BOS	EOS	594	30	28	7:30	7:35	VS	VS	11/20/2008	P
P-328/329	11:02	M.R.	22	800	70%	BOS	EOS	594	30	28	7:32	7:37	VS	VS	11/20/2008	P
P-329/330	11:30	C.F.	19	800	70%	BOS	EOS	594	30	28	7:40	7:45	VS	VS	11/20/2008	P
P-330/340	3:44	M.M.	6	800	70%	BOS	EOS	50	30	30	8:26	8:31	VS	VS	11/20/2008	P
P-330/341	3:48	M.M.	6	800	70%	BOS	EOS	83	30	30	8:18	8:23	VS	VS	11/20/2008	P
P-330/340	3:57	M.M.	6	800	70%	BOS	EOS	84	30	30	8:17	8:22	VS	VS	11/20/2008	P
P-330/337	4:08	M.M.	6	800	70%	BOS	EOS	86	30	29	8:01	8:06	VS	VS	11/20/2008	P
P-330/336	4:19	M.M.	6	800	70%	BOS	EOS	83	30	30	7:55	8:00	VS	VS	11/20/2008	P
P-330/334	4:29	M.M.	6	800	70%	BOS	EOS	46	30	28	7:51	7:56	VS	VS	11/20/2008	P
P-330/333	4:35	M.M.	6	800	70%	BOS	EOS	35	30	30	7:46	7:51	VS	VS	11/20/2008	P
P-330/332	4:37	C.F.	19	800	70%	BOS	EOS	77	30	30	7:45	7:50	VS	VS	11/20/2008	P
P-330/331	4:45	C.F.	19	800	70%	BOS	EOS	43	30	28	7:44	7:49	VS	VS	11/20/2008	P
P-343/344	3:42	C.F.	19	800	70%	BOS	EOS	50	30	29	8:25	8:30	VS	VS	11/20/2008	P
P-342/343	3:25	C.F.	19	800	70%	BOS	EOS	50	30	30	8:13	8:18	VS	VS	11/20/2008	P
P-341/342	3:32	C.F.	19	800	70%	BOS	EOS	20	30	28	8:20	8:25	VS	VS	11/20/2008	P
P-340/341	3:35	C.F.	19	800	70%	BOS	EOS	63	30	28	8:14	8:19	VS	VS	11/20/2008	P
P-341/343	3:20	C.F.	19	800	70%	BOS	EOS	22.5	30	30	8:21	8:26	VS	VS	11/20/2008	P
P-340/342	3:15	M.M.	6	800	70%	BOS	EOS	22.5	30	29	8:15	8:20	VS	VS	11/20/2008	P
P-339/342	3:16	M.M.	6	800	70%	BOS	EOS	73	30	29	8:12	8:17	VS	VS	11/20/2008	P
P-332/340	3:24	M.M.	6	800	70%	BOS	EOS	140	30	28	8:16	8:21	VS	VS	11/20/2008	P
P-338/338	2:52	M.R.	22	800	70%	BOS	170'>BOS	170	30	30	8:11	8:16	VS	VS	11/20/2008	P
P-338/339	3:11	M.R.	22	800	70%	BOS	43'>EOS	43	30	30	8:10	8:15	VS	VS	11/20/2008	P
P-336/339	3:17	M.R.	22	800	70%	BOS	EOS	8	30	29	8:06	8:11	VS	VS	11/20/2008	P
P-337/339	3:00	M.M.	6	800	70%	BOS	EOS	22.5	30	30	8:05	8:10	VS	VS	11/20/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 11/19/2008
Project Location: Raleigh NC
Page: 2 of 2

LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
P-336/337	3:18	M.R.	22	800	70%	BOS	EOS	86	30	30	8:02	8:07	VS	VS	11/20/2008	P
P-336/338	2:48	C.F.	19	800	70%	BOS	EOS	22.5	30	30	8:08	8:13	VS	VS	11/20/2008	P
P-335/338	2:52	C.F.	19	800	70%	BOS	EOS	220	30	30	8:50	8:55	VS	VS	11/20/2008	P
P-335/336	2:30	M.R.	22	800	70%	BOS	EOS	184	30	30	8:07	8:12	VS	VS	11/20/2008	P
P-334/335	2:24	M.R.	22	800	70%	BOS	EOS	22.5	30	30	7:52	7:57	VS	VS	11/20/2008	P
P-333/335	2:00	M.M.	6	800	70%	BOS	EOS	396	30	30	8:51	8:56	VS	VS	11/20/2008	P
P-332/334	2:45	M.M.	6	800	70%	BOS	EOS	46	30	30	7:50	7:55	VS	VS	11/20/2008	P
P-332/333	2:50	M.M.	6	800	70%	BOS	EOS	35	30	30	7:47	7:52	VS	VS	11/20/2008	P
P-332/334	2:20	M.R.	22	800	70%	BOS	EOS	9	30	30	7:48	7:53	VS	VS	11/20/2008	P
P-331/332	1:38	C.F.	19	800	70%	BOS	355'>BOS	355	30	30	8:53	8:58	VS	VS	11/20/2008	P
P-331/332	2:13	C.F.	19	800	70%	BOS	195'>BOS	195	30	30	9:20	9:25	VS	VS	11/20/2008	P
P-331/346	4:40	M.R.	22	800	70%	BOS	EOS	140	30	30	9:02	9:07	VS	VS	11/20/2008	P
P-331/345	4:10	C.F.	19	800	70%	BOS	EOS	445	30	30	9:11	9:16	VS	VS	11/20/2008	P
P-345/346	4:30	M.R.	22	800	70%	BOS	EOS	22.5	30	30	9:10	9:15	VS	VS	11/20/2008	P
P-346/348	5:05	M.R.	22	800	70%	BOS	EOS	135	30	30	9:03	9:08	VS	VS	11/20/2008	P
P-347/348	5:00	M.R.	22	800	70%	BOS	EOS	22.5	30	30	9:04	9:09	VS	VS	11/20/2008	P
P-346/347	4:45	M.M.	6	800	70%	BOS	EOS	8	30	30	9:05	9:10	VS	VS	11/20/2008	P
P-345/347	4:46	M.M.	6	800	70%	BOS	EOS	445	30	30	9:06	9:11	VS	VS	11/20/2008	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 1/30/2009
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test PSI Start	Air Pressure Test PSI Finish	Air Pressure Test Time Start	Air Pressure Test Time Finish	Air Pressure Test Tech	Vac Test Tech	Test Date	Pass / Fail
349/350	9:39	DR	20	860	55%	BOS	EOS	257	30	29	2:53	2:58	FL		1/30/2009	P
349/350	9:59	DR	20	860	55%	257'> BOS	EOS	30	30	30	2:50	2:55	FL		1/30/2009	P
350/351	9:48	EF	22	860	60%	BOS	EOS	103	30	30	3:10	3:15	FL		1/30/2009	P
350/351	9:58	EF	22	860	60%	103'> BOS	EOS	51	30	28	3:08	3:13	FL		1/30/2009	P
350/351	10:07	EF	22	860	60%	154'> BOS	EOS	116	30	30	2:55	3:00	FL		1/30/2009	P
351/352	10:00	RO	25	860	55%	BOS	EOS	13	30	30	3:15	3:20	FL		1/30/2009	P
351/352	10:02	RO	25	860	55%	13'> BOS	EOS	8	30	30	3:12	3:17	FL		1/30/2009	P
351/352	10:04	RO	25	860	55%	21'> BOS	EOS	99	30	30	3:19	3:24	FL		1/30/2009	P
351/352	10:15	RO	25	860	55%	120'. BOS	EOS	62	30	29	3:23	3:28	FL		1/30/2009	P
351/352	10:22	RO	25	860	55%	182'> BOS	EOS	64	30	28	8:25	8:30	FL		1/30/2009	P
352/353	10:48	DR	20	860	55%	BOS	EOS	43	30	29	3:43	3:48	FL		1/30/2009	P
352/353	10:54	DR	20	860	55%	43'> BOS	EOS	13	30	30	3:41	3:46	FL		1/30/2009	P
352/353	10:56	DR	20	860	55%	56'> BOS	EOS	10	30	30	3:33	3:38	FL		1/30/2009	P
353/354	10:35	DR	20	860	50%	BOS	EOS	22.5	30	28	3:31	3:36	FL		1/30/2009	P
352/354	10:58	DR	20	860	55%	BOS	EOS	183	30	29	3:29	3:34	FL		1/30/2009	P
353/355	10:56	EF	22	860	60%	BOS	EOS	60	30	30	3:45	3:50	FL		1/30/2009	P
354/355	11:02	EF	22	860	60%	BOS	EOS	51	30	30	3:47	3:52	FL		1/30/2009	P
354/355	11:08	EF	22	860	60%	51'> BOS	EOS	6	30	30	3:50	3:55	FL		1/30/2009	P
354/355	11:09	EF	22	860	60%	57'> BOS	EOS	127	31	31	3:57	4:02	FL		1/30/2009	P
355/356	11:26	RO	25	860	55%	BOS	EOS	24	30	28	4:14	4:19	FL		1/30/2009	P
355/356	11:29	RO	25	860	55%	24'> BOS	EOS	10	30	30	4:12	4:17	FL		1/30/2009	P
355/356	11:30	RO	25	860	55%	34'> BOS	EOS	76	30	30	4:10	4:15	FL		1/30/2009	P
355/356	11:40	RO	25	860	55%	110'> BOS	EOS	48	30	29	4:04	4:09	FL		1/30/2009	P
356/357	11:27	DR	20	860	50%	BOS	EOS	22.5	30	29	4:08	4:13	FL		1/30/2009	P
355/357	11:46	RO	25	860	55%	BOS	EOS	75	30	30	4:02	4:07	FL		1/30/2009	P
356/358	11:38	DR	20	860	55%	BOS	EOS	88	30	28	4:20	4:25	FL		1/30/2009	P
356/358	11:50	DR	20	860	55%	88'> BOS	EOS	67	30	30	4:23	4:28	FL		1/30/2009	P
357/358	11:58	DR	20	860	55%	BOS	EOS	61	30	30	4:25	4:30	FL		1/30/2009	P
357/359	12:06	DR	20	860	55%	61'> BOS	EOS	13	30	30	4:42	4:47	FL		1/30/2009	P
358/359	11:59	EF	22	860	60%	BOS	EOS	224	30	30	4:43	4:48	FL		1/30/2009	P
359/360	12:38	RO	25	860	55%	BOS	EOS	60	30	30	4:50	4:55	FL		1/30/2009	P
360/361	12:24	DR	20	860	55%	BOS	EOS	22.5	30	29	4:53	4:58	FL		1/30/2009	P
359/361	12:46	RO	25	860	55%	BOS	EOS	157	30	30	4:45	4:50	FL		1/30/2009	P

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CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 1/30/2009
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
360/362	12:42	DR	20	860	55%	BOS	EOS	60	30	30	4:45	4:50	FL		1/30/2009	P
361/362	12:50	DR	20	860	55%	BOS	EOS	156	30	30	4:57	5:02	FL		1/30/2009	P
362/363	1:46	EF	22	860	60%	BOS	EOS	208	30	30	5:00	5:05	FL		1/30/2009	P
363/364	2:54	EF	22	860	60%	BOS	EOS	200	30	30	5:03	5:08	FL		1/30/2009	P

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CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 1/31/2009
Project Location: Raleigh NC
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LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test PSI Start	Air Pressure Test PSI Finish	Air Pressure Test Time Start	Air Pressure Test Time Finish	Tech	Vac Test Tech	Test Date	Pass / Fail
364/365	8:19	RO	25	860	71%	BOS	EOS	188	30	30	10:10	10:15	FL		1/31/2009	P
365/366	8:31	DR	20	860	60%	BOS	EOS	187	30	30	10:17	10:22	FL		1/31/2009	P
366/367	9:08	RO	25	860	71%	BOS	EOS	31	30	30	10:25	10:30	FL		1/31/2009	P
367/368	9:02	DR	20	860	60%	BOS	EOS	22.5	30	30	10:23	10:28	FL		1/31/2009	P
366/368	9:12	RO	25	860	71%	BOS	EOS	143	30	30	10:18	10:23	FL		1/31/2009	P
369/367	9:10	DR	20	860	60%	BOS	EOS	17	30	30	10:31	10:36	FL		1/31/2009	P
369/367	9:12	DR	20	860	60%	17'> BOS	EOS	9	30	30	10:27	10:32	FL		1/31/2009	P
368/369	9:13	DR	20	860	60%	BOS	EOS	141	30	29	10:35	10:40	FL		1/31/2009	P
369/370	9:12	EF	22	840	56%	BOS	EOS	160	30	30	10:36	10:41	FL		1/31/2009	P
370/371	10:06	DR	20	860	60%	BOS	EOS	127	30	30	10:40	10:45	FL		1/31/2009	P
371/372	9:50	DR	20	860	60%	BOS	EOS	22.5	30	29	10:45	10:50	FL		1/31/2009	P
370/372	10:25	DR	20	860	60%	BOS	EOS	27	30	30	10:48	10:53	FL		1/31/2009	P
370/373	10:01	RO	25	860	71%	BOS	EOS	118	30	30	10:49	10:54	FL		1/31/2009	P
373/372	10:20	RO	25	860	71%	BOS	EOS	17	30	30	10:53	10:58	FL		1/31/2009	P
372/374	10:23	RO	25	860	71%	BOS	EOS	13	30	30	11:33	11:38	FL		1/31/2009	P
373/374	10:20	EF	22	840	56%	BOS	EOS	11	30	0:00	11:35	11:40	FL		1/31/2009	P
373/374	10:21	EF	22	840	56%	BOS	EOS	11	30	27	11:39	11:44	FL		1/31/2009	P
373/375	10:30	EF	22	840	56%	BOS	EOS	125	30	30	11:41	11:46	FL		1/31/2009	P
374/375	10:49	EF	22	840	56%	BOS	EOS	9	30	28	11:43	11:48	FL		1/31/2009	P

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Seaming Log

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LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
376/368	2:30	DR	20	830	55%	BOS	EOS	28	30	30	7:45	7:50	FL		2/3/2009	P
348/376	2:33	DR	20	830	55%	28'> BOS	EOS	73	30	29	7:51	7:56	FL		2/3/2009	P
347/376	2:50	DR	20	830	55%	BOS	EOS	58	30	30	7:59	8:04	FL		2/3/2009	P
347/376	2:58	DR	20	830	55%	58'> BOS	EOS	103	30	30	8:07	8:12	FL		2/3/2009	P
347/376	3:10	DR	20	830	55%	161'> BOS	EOS	159	30	30	8:15	8:20	FL		2/3/2009	P
347/376	3:27	DR	20	830	55%	320'> BOS	EOS	118	30	30	8:20	8:25	FL		2/3/2009	P
376/377	3:00	EF	22	830	65%	10'> BOS	EOS	9	30	30	8:50	8:55	FL		2/3/2009	P
376/377	3:02	EF	22	830	65%	19'> BOS	EOS	18	30	28	8:51	8:56	FL		2/3/2009	P
376/377	3:12	EF	22	830	65%	28'> BOS	EOS	129	30	30	8:48	8:53	FL		2/3/2009	P
376/377	3:30	EF	22	830	65%	158'> BOS	EOS	102	30	30	8:45	8:50	FL		2/3/2009	P
376/377	3:45	EF	22	830	65%	260'> BOS	EOS	38	30	29	8:41	8:46	FL		2/3/2009	P
376/377	3:49	EF	22	830	65%	298'> BOS	EOS	95	30	30	8:39	8:44	FL		2/3/2009	P
376/377	4:00	EF	22	830	65%	393'> BOS	EOS	58	30	30	8:35	8:40	FL		2/3/2009	P
376/377	4:09	EF	22	830	65%	451'> BOS	EOS	31	30	30	8:32	8:37	FL		2/3/2009	P
376/377	4:14	EF	22	830	65%	482'> BOS	EOS	77	30	30	8:26	8:31	FL		2/3/2009	P
377/378	3:45	RO	25	825	60%	BOS	EOS	428	30	30	9:14	9:19	FL		2/3/2009	P
377/378	4:31	RO	25	825	60%	428'> BOS	EOS	132	30	29	9:17	9:22	FL		2/3/2009	P
378/379	4:09	DR	20	830	55%	BOS	EOS	185	30	30	9:30	9:35	FL		2/3/2009	P
378/379	4:30	DR	20	830	55%	185'> BOS	EOS		30	27	8:25	8:30	FL		2/3/2009	P
379/380	4:51	EF	22	830	65%	5'> BOS	EOS	390	30	30	9:43	9:48	FL		2/3/2009	P
379/380	5:30	EF	22	830	65%	395'> BOS	EOS	132	30	30	9:50	9:55	FL		2/3/2009	P

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Seaming Log

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Project Name: North Wake
Weld Date: 2/6/2009
Project Location: Raleigh NC
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
397/398	5:02	EF	22	860	55%	BOS	EOS	12	30	30	12:07	12:12	CM		2/13/2009	P
396/397	4:55	EF	22	860	55%	BOS	EOS	22.5	30	30	12:13	12:18	CM		2/13/2009	P
396/398	5:04	EF	22	860	55%	BOS	EOS	222	30	30	12:15	12:20	CM		2/13/2009	P
396/398	5:32	EF	22	860	55%	222'> BOS	EOS	59	30	30	1:11	1:16	CM		2/13/2009	P
396/398	5:40	EF	22	860	55%	281'> BOS	EOS	78	30	29	1:16	1:21	CM		2/13/2009	P
395/397	4:50	CM	25	860	55%	BOS	EOS	29	30	30	2:05	2:10	CM		2/13/2009	P
395/396	4:54	CM	25	860	55%	BOS	EOS	134	30	30	1:51	1:56	CM		2/13/2009	P
395/396	5:17	CM	25	860	55%	139'> BOS	EOS	49	30	29	1:45	1:50	CM		2/13/2009	P
394/395	4:53	DR	20	860	55%	BOS	EOS	22.5	30	30	1:33	1:38	CM		2/13/2009	P
394/396	5:25	CM	25	860	55%	BOS	EOS	68	30	30	1:26	1:31	CM		2/13/2009	P
394/395	5:35	CM	25	860	55%	68'> BOS	EOS	102	30	30	1:26	1:31	CM		2/13/2009	P
393/395	4:27	DR	20	860	55%	BOS	EOS	174	30	29	1:34	1:39	CM		2/13/2009	P
393/395	4:48	DR	20	860	55%	174'> BOS	EOS	47	30	30	1:47	1:52	CM		2/13/2009	P
393/395	4:55	DR	20	860	55%	221'> BOS	EOS	7	30	30	1:37	1:42	CM		2/13/2009	P
393/394	4:59	DR	20	860	55%	BOS	EOS	171	30	30	1:37	1:42	CM		2/13/2009	P
392/393	4:08	EF	22	860	55%	BOS	EOS	41	30	30	2:34	2:39	CM		2/13/2009	P
391/392	4:03	EF	22	860	55%	BOS	EOS	10	30	30	2:36	2:41	CM		2/13/2009	P
391/392	4:04	EF	22	860	55%	10'> BOS	EOS	12	30	30	2:36	2:41	CM		2/13/2009	P
391/393	4:12	EF	22	860	55%	BOS	EOS	16	30	30	2:42	2:47	CM		2/13/2009	P
391/393	4:14	EF	22	860	55%	16'> BOS	EOS	55	30	29	2:52	2:57	CM		2/13/2009	P
391/393	4:20	EF	22	860	55%	71'> BOS	EOS	196	30	30	3:10	3:15	CM		2/13/2009	P
391/393	4:45	EF	22	860	55%	267'> BOS	EOS	32	30	30	4:06	4:11	CM		2/13/2009	P
391/393	4:49	EF	22	860	55%	299'> BOS	EOS	34	30	30	4:12	4:17	CM		2/13/2009	P
391/393	4:55	EF	22	860	55%	333'> BOS	EOS	40	30	28	4:15	4:20	CM		2/13/2009	P
390/392	3:00	CM	25	860	55%	BOS	EOS	7	30	30	2:15	2:20	CM		2/13/2009	P
389/390	2:38	DR	20	860	55%	BOS	EOS	22.5	30	30	2:20	2:25	CM		2/13/2009	P
389/392	3:02	CM	25	860	55%	BOS	EOS	45	30	30	2:25	2:30	CM		2/13/2009	P
389/391	3:10	CM	25	860	55%	BOS	EOS	70	30	30	3:17	3:22	CM		2/13/2009	P
388/389	2:12	DR	20	860	55%	BOS	EOS	22.5	30	30	3:23	3:28	CM		2/13/2009	P
388/391	3:28	CM	25	860	55%	BOS	EOS	12	30	30	3:30	3:35	CM		2/13/2009	P
388/391	3:30	CM	25	860	55%	12'> BOS	EOS	16	30	30	3:35	3:40	CM		2/13/2009	P
388/391	3:32	CM	25	860	55%	28'> BOS	EOS	82	30	30	3:50	3:55	CM		2/13/2009	P
388/391	3:49	CM	25	860	55%	110'> BOS	EOS	17	30	30	3:53	3:58	CM		2/13/2009	P

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CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 2/6/2009
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LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
387/388	2:03	DR	20	860	55%	BOS	EOS	22.5	30	30	3:56	4:01	CM		2/13/2009	P
387/391	3:51	CM	25	860	55%	BOS	EOS	145	30	30	4:00	4:05	CM		2/13/2009	P
387/391	4:19	CM	25	860	55%	145'> BOS	EOS	30	30	30	4:14	4:19	CM		2/13/2009	P
386/390	2:42	DR	20	860	55%	BOS	EOS	23	30	30	5:07	5:12	CM		2/13/2009	P
386/389	2:45	DR	20	860	55%	BOS	EOS	114	30	30	5:04	5:09	CM		2/13/2009	P
386/388	3:07	DR	20	860	55%	BOS	EOS	127	30	30	4:50	4:55	CM		2/13/2009	P
386/387	3:33	DR	20	860	55%	BOS	EOS	20	30	30	4:45	4:50	CM		2/13/2009	P
386/387	3:36	DR	20	860	55%	20'> BOS	EOS	154	30	30	4:23	4:28	CM		2/13/2009	P
385/386	12:55	CM	25	860	55%	BOS	EOS	55	30	30	5:13	5:18	CM		2/13/2009	P
385/386	1:02	CM	25	860	55%	55'> BOS	EOS	108	30	30	5:02	5:07	CM		2/13/2009	P
385/386	1:15	CM	25	860	55%	163'> BOS	EOS	17	31	30	4:58	5:03	CM		2/13/2009	P
385/386	1:18	CM	25	860	55%	180'> BOS	EOS	83	30	29	4:38	4:43	CM		2/13/2009	P
385/386	1:34	CM	25	860	55%	263'> BOS	EOS	125	30	30	4:31	4:36	CM		2/13/2009	P
385/386	1:52	CM	25	860	55%	388'> BOS	EOS	7	30	30	4:28	4:33	CM		2/13/2009	P
385/386	1:54	CM	25	860	55%	395'> BOS	EOS	56	30	30	4:25	4:30	CM		2/13/2009	P
384/385	12:02	EF	22	860	55%	BOS	EOS	36	30	30	5:17	5:22	CM		2/13/2009	P
384/385	12:06	EF	22	860	55%	36'> BOS	EOS	184	30	30	5:30	5:35	CM		2/13/2009	P
384/385	12:21	EF	22	860	55%	140'> BOS	EOS	237	30	30	5:51	5:56	CM		2/13/2009	P
384/385	12:53	EF	22	860	55%	377'> BOS	EOS	86	30	30	5:54	5:59	CM		2/13/2009	P
383/384	11:32	DR	20	860	55%	BOS	EOS	257	30	29	5:34	5:39	CM		2/13/2009	P
383/384	12:04	DR	20	860	55%	257'> BOS	EOS	143	30	29	7:30	7:35	CM		2/14/2009	P
383/384	12:24	DR	20	860	55%	400'> BOS	EOS	70	30	30	7:48	7:53	CM		2/14/2009	P
382/383	10:45	CM	25	860	55%	BOS	EOS	287	30	30	8:24	8:29	CM		2/14/2009	P
382/383	11:21	CM	25	860	55%	287'> BOS	EOS	130	30	30	8:10	8:15	CM		2/14/2009	P
382/383	11:39	CM	25	860	55%	417'> BOS	EOS	24	30	30	7:58	8:03	CM		2/14/2009	P
382/383	11:43	CM	25	860	55%	441'> BOS	EOS	42	30	30	7:52	7:57	CM		2/14/2009	P
381/382	10:17	EF	22	860	55%	BOS	EOS	287	30	30	8:09	8:14	CM		2/14/2009	P
381/382	10:50	EF	22	860	55%	287'> BOS	EOS	220	30	30	8:03	8:08	CM		2/14/2009	P
380/381	9:49	DR	20	860	55%	BOS	EOS	40	30	30	8:50	8:55	CM		2/14/2009	P
380/381	9:55	DR	20	860	55%	40'> BOS	EOS	19	30	30	8:45	8:50	CM		2/14/2009	P
380/381	9:58	DR	20	860	55%	59'> BOS	EOS	283	30	30	8:38	8:43	CM		2/14/2009	P
380/381	10:31	DR	20	860	55%	342'> BOS	EOS	178	30	30	8:28	8:33	CM		2/14/2009	P
							EOS					0:05				

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake — LLDPE
Weld Date: 2/7/2009
Project Location: Raleigh NC — 40 mil.
Page: 1 of 2

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test PSI Start	Air Pressure Test PSI Finish	Air Pressure Test Time Start	Air Pressure Test Time Finish	Air Pressure Test Tech	Vac Test Tech	Test Date	Pass / Fail
412/254	1:15	DR	20	800	55%	BOS	EOS	55	30	30	8:07	8:12	CM		2/13/2009	P
412/254	1:24	DR	20	800	55%	55'> BOS	EOS	175	30	30	8:13	8:18	CM		2/13/2009	P
413/409	1:23	CM	25	860	55%	BOS	EOS	18	31	30	8:36	8:41	CM		2/13/2009	P
413/409	1:25	CM	25	860	55%	15'> BOS	EOS	12	31	30	8:42	8:47	CM		2/13/2009	P
412/413	1:50	DR	20	800	55%	BOS	EOS	22.5	30	30	8:22	8:27	CM		2/13/2009	P
412/411	2:00	DR	20	800	55%	BOS	EOS	152	30	29	8:28	8:33	CM		2/13/2009	P
412/414	2:17	DR	20	800	55%	BOS	EOS	84	30	30	9:15	9:20	CM		2/13/2009	P
414/411	2:27	DR	20	800	55%	BOS	EOS	12	30	30	9:15	9:20	CM		2/13/2009	P
411/410	12:10	CM	25	860	55%	BOS	EOS	22.5	30	30	9:20	9:25	CM		2/13/2009	P
414/410	2:29	DR	20	800	55%	BOS	EOS	72	30	30	9:20	9:25	CM		2/13/2009	P
409/411	1:36	CM	25	860	55%	67'> BOS	EOS	71	31	29	9:00	9:05	CM		2/13/2009	P
409/411	1:45	CM	25	860	55%	138'> BOS	EOS	50	30	30	9:10	9:15	CM		2/13/2009	P
409/410	1:51	CM	25	860	55%	BOS	EOS	71	30	29	9:26	9:31	CM		2/13/2009	P
408/409	11:40	CM	25	860	55%	BOS	EOS	11	30	30	10:10	10:15	CM		2/13/2009	P
408/409	11:41	CM	25	860	55%	11'> BOS	EOS	195	30	30	9:39	9:44	CM		2/13/2009	P
408/407	11:26	DR	20	800	55%	BOS	EOS	22.5	30	30	9:37	9:42	CM		2/13/2009	P
407/409	12:00	CM	25	860	55%	BOS	EOS	68	30	30	9:32	9:37	CM		2/13/2009	P
406/408	11:47	DR	20	800	55%	BOS	EOS	178	30	30	10:00	10:05	CM		2/13/2009	P
406/408	11:56	DR	20	800	55%	178'> BOS	EOS	16	30	30	9:51	9:56	CM		2/13/2009	P
406/408	11:58	DR	20	800	55%	194'> BOS	EOS	30	30	30	9:45	9:50	CM		2/13/2009	P
406/407	12:02	DR	20	800	55%	BOS	EOS	65	30	30	9:43	9:48	CM		2/13/2009	P
405/406	10:42	DR	20	800	55%	BOS	EOS	190	30	29	10:15	10:20	CM		2/13/2009	P
406/404	11:01	DR	20	800	55%	BOS	EOS	112	30	30	10:54	10:59	CM		2/13/2009	P
405/404	10:52	CM	25	860	55%	BOS	EOS	22.5	30	30	10:46	10:51	CM		2/13/2009	P
403/405	10:44	CM	25	860	55%	BOS	EOS	90	30	30	10:27	10:32	CM		2/13/2009	P
403/405	10:53	CM	25	860	55%	90'> BOS	EOS	117	30	30	10:39	10:44	CM		2/13/2009	P
403/404	11:09	CM	25	860	55%	BOS	EOS	7	30	29	11:00	11:05	CM		2/13/2009	P
403/404	11:10	CM	25	860	55%	7'> BOS	EOS	24	30	30	11:03	11:08	CM		2/13/2009	P
404/402	11:13	CM	25	860	55%	BOS	EOS	79	30	30	11:05	11:10	CM		2/13/2009	P
403/402	10:47	CM	25	860	55%	BOS	EOS	22.5	30	30	11:08	11:13	CM		2/13/2009	P
401/403	10:02	EF	22	860	55%	BOS	EOS	159	30	30	11:38	11:43	CM		2/13/2009	P
401/403	10:20	EF	22	860	55%	159'> BOS	EOS	8	30	29	11:34	11:39	CM		2/13/2009	P
401/403	10:21	EF	22	860	55%	167'> BOS	EOS	40	30	30	11:23	11:28	CM		2/13/2009	P

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CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 2/7/2009
Project Location: Raleigh NC
Page: 2 of 2

LLDPE
40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
401/403	10:27	EF	22	860	55%	207'> BOS	EOS	45	30	30	11:20	11:25	CM		2/13/2009	P
401/402	10:34	EF	22	860	55%	BOS	EOS	79	30	30	11:11	11:16	CM		2/13/2009	P
400/401	9:15	CM	25	860	55%	BOS	EOS	151	30	28	11:59	12:04	CM		2/13/2009	P
400/399	8:45	EF	22	860	55%	BOS	EOS	21	30	30	11:41	11:46	CM		2/13/2009	P
401/399	9:39	CM	25	860	55%	BOS	EOS	31	30	30	11:30	11:35	CM		2/13/2009	P
401/399	9:44	CM	25	860	55%	31'> BOS	EOS	170	31	29	11:26	11:31	CM		2/13/2009	P
398/400	9:02	EF	22	860	55%	BOS	EOS	135	30	30	12:00	12:05	CM		2/13/2009	P
399/400	9:21	EF	22	860	55%	135'> BOS	EOS	27	30	30	12:22	12:27	CM		2/13/2009	P
398/399	9:26	EF	22	860	55%	BOS	EOS	197	30	30	1:06	1:11	CM		2/13/2009	P

CDM

CQC Form 106
Seaming Log

Project No.: 6172-55752
Project Name: North Wake
Weld Date: 2/20/2009
Project Location: Raleigh NC
Page: 1 of 1

LLDPE

40 mil.

SEAM # (P#/P#)	WELD TIME	TECH ID	Machine ID	Machine Temp	Machine Speed or Preheat	Start Point	End Point	Seam Length (Feet)	Air Pressure Test					Vac Test Tech	Test Date	Pass / Fail
									PSI		Time		Tech			
									Start	Finish	Start	Finish				
415/375	9:35	CM	20	860	55%	BOS	EOS	135	30	30	11:37	11:42	JO		2/20/2009	P
415/416	9:55	CM	20	860	55%	BOS	EOS	61	30	30	12:02	12:07	JO		2/20/2009	P
415/416	10:04	CM	20	860	55%	61'> BOS	EOS	82	30	30	12:10	12:15	JO		2/20/2009	P
416/417	10:15	CM	20	860	55%	BOS	EOS	137	30	30	11:56	12:01	JO		2/20/2009	P
417/421	10:40	CM	20	860	55%	BOS	EOS	43	29	29	11:47	11:52	JO		2/20/2009	P
417/420	10:50	CM	20	860	55%	BOS	EOS	43	30	30	12:17	12:22	JO		2/20/2009	P
420/419	11:00	CM	20	860	55%	BOS	EOS	37	29	29	12:23	12:28	JO		2/20/2009	P
419/418	11:08	CM	20	860	55%	BOS	EOS	36	30	30	12:29	12:34	JO		2/20/2009	P
418/376	11:13	CM	20	860	55%	BOS	EOS	8	Extrusion Weld					JO	2/20/2009	P
418/376	11:14	CM	20	860	55%	8'> BOS	EOS	23	30	30	1:13	1:18	JO		2/20/2009	P

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APPENDIX B-12

LLDPE Liner Destructive Testing

CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 1 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
1	P-3/1	8/15/2008	22	M.R.	750/750		65	70	62			70	71	69			P	A.S.	SM/SM
							66	65	64										
2	P-4/2	8/15/2008	19	C.L.	750/750		61	62	63			69	72	75			P	A.S.	SM/SM
							60	65	62										
3	P-6/4	8/15/2008	22	M.R.	750/750		61	66	64			71	70	76			P	A.S.	SM/SM
							63	68	65										
4	P-9/8	8/15/2008	22	M.R.	750/750		66	65	64			78	77	79			P	A.S.	SM/SM
							66	63	66										
5	P-11/13	8/15/2008	22	M.R.	750/750		63	62	61			70	71	76			P	A.S.	SM/SM
							64	68	66										
6	P-13/14	8/15/2008	19	C.L.	750/750		62	64	65			73	72	74			P	A.S.	SM/SM
							66	60	65										
7	P-17/19	8/15/2008	19	C.L.	750/750		62	61	62			70	72	75			P	A.S.	SM/SM
							64	50	66										
8	P-16/17	8/15/2008	22	M.R.	750/750		65	59	54			73	76	75			P	A.S.	SM/SM
							64	61	60										
9	P-16/22	8/15/2008	19	C.L.	750/750		68	66	67			71	72	70			P	A.S.	SM/SM
							66	66	66										
10	P-24/22	8/15/2008	22	M.R.	750/750		60	62	65			71	70	70			P	A.S.	SM/SM
							61	60	64										
11	P-24/25	8/15/2008	19	C.L.	750/750		62	68	64			71	71	72			P	A.S.	SM/SM
							68	66	64										
12	P-26/28	8/19/2008	22	M.R.	750/750		60	57	59			69	67	70			P	A.S.	SM/SM
							61	60	58										
13	P-29/31	8/19/2008	19	C.L.	750/750		60	57	61			68	72	71			P	A.S.	SM/SM
							61	60	59										

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 2 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
14	P-32/33	8/19/2008	10	M.M.	750/750		62	65	69			72	74	70			P	A.S.	SM/SM
							67	67	70										
15	P-34/35	8/19/2008	22	M.R.	750/750		57	61	74			74	71	69			P	A.S.	SM/SM
							69	62	60										
16	P-36/38	8/19/2008	19	C.L.	750/750		66	68	65			71	78	70			P	A.S.	SM/SM
							62	64	64										
17	P-39/40	8/19/2008	10	M.M.	750/750		64	61	62			69	72	70			P	A.S.	SM/SM
							64	60	59										
18	P-42/43	8/19/2008	22	M.R.	750/750		61	66	60			74	70	68			P	A.S.	SM/SM
							59	61	65										
19	P-45/46	8/19/2008	22	M.R.	750/750		60	66	70			78	72	71			P	A.S.	SM/SM
							62	64	64										
20	P-49/50	8/19/2008	10	M.M.	750/750		66	68	62			72	71	74			P	A.S.	SM/SM
							64	66	68										
21	P-55/56	8/19/2008	10	M.M.	750/750		60	62	61			78	77	70			P	A.S.	SM/SM
							64	60	69										
22	P-59/60	8/20/2008	10	M.M.	750/750		65	62	63			75	73	72			P	A.S.	SM/SM
							62	63	62										
23	P-63/64	8/20/2008	10	M.M.	750/750		63	58	58			68	71	73			P	A.S.	SM/SM
							65	59	59										
24	P-67/68	8/20/2008	22	M.R.	750/750		64	60	61			70	72	74			P	A.S.	SM/SM
							60	61	60										
25	P-69/71	8/20/2008	10	M.M.	750/750		59	66	65			71	75	72			P	A.S.	SM/SM
							61	62	61										
26	P-74/73	8/21/2008	10	M.M.	750/750		68	66	68			74	72	78			P	A.S.	SM/SM
							66	64	62										

CDM

CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 3 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
27	P-77/76	8/21/2008	10	M.M.	750/750		61	62	60			76	75	79			P	A.S.	SM/SM
							66	64	66										
28	P-77/78	8/21/2008	22	M.R.	750/750		68	62	61			78	75	79			P	A.S.	SM/SM
							67	66	64										
29	P-79/81	8/21/2008	22	M.R.	750/750		66	68	66			72	76	72			P	A.S.	SM/SM
							70	64	61										
30	P-81/83	8/21/2008	22	M.R.	750/750		64	66	68			71	76	75			P	A.S.	SM/SM
							62	62	66										
31	P-83/84	8/21/2008	22	M.R.	750/750		61	60	62			78	76	80			P	A.S.	SM/SM
							64	62	66										
32	P-86/90	8/21/2008	22	M.R.	750/750		68	61	63			79	77	74			P	A.S.	SM/SM
							66	64	70										
33	P-92/94	8/21/2008	22	M.R.	750/750		62	68	64			78	81	79			P	A.S.	SM/SM
							61	60	62										
34	P-94/95	8/21/2008	19	C.L.	750/750		62	68	64			26	74	75			P	A.S.	SM/SM
							70	66	62										
35	P-95/97	8/21/2008	10	M.M.	750/750		62	66	69			78	69	80			P	A.S.	SM/SM
							60	63	69										
36	P-97/99	8/21/2008	22	M.R.	750/750		62	66	68			77	79	74			P	A.S.	SM/SM
							66	60	64										
37	P-99/100	8/21/2008	10	M.M.	750/750		70	60	66			78	79	71			P	A.S.	SM/SM
							68	62	69										
38	P-100/102	8/21/2008	19	C.L.	750/750		69	66	61			72	79	80			P	A.S.	SM/SM
							68	66	60										
39	P-102/104	8/21/2008	22	M.R.	750/750		60	64	68			78	80	79			P	A.S.	SM/SM
							62	62	66										

CDM

CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 4 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
40	P-104/105	8/23/2008	10	M.M.	750/750		64	62	60			75	76	78			P	A.S.	SM/SM
							69	66	68										
41	P-105/107	8/23/2008	19	C.L.	750/750		66	68	61			71	78	72			P	A.S.	SM/SM
							62	64	64										
42	P-107/108	8/23/2008	22	M.R.	750/750		68	62	66			70	72	74			P	A.S.	SM/SM
							66	62	61										
43	P-110/112	9/4/2008	22	M.R.	750/750		62	64	62			74	72	73			P	A.S.	SM/SM
							65	66	63										
44	P-112/114	9/4/2008	6	M.M.	750/750		64	66	62			71	75	72			P	A.S.	SM/SM
							62	60	68										
45	P-114/115	9/4/2008	22	M.R.	750/750		63	62	63			71	74	72			P	A.S.	SM/SM
							62	61	64										
46	P-115/116	9/4/2008	19	C.L.	750/750		62	62	64			74	75	73			P	A.S.	SM/SM
							64	63	61										
47	P-116/117	9/4/2008	6	M.M.	750/750		63	62	63			72	71	73			P	A.S.	SM/SM
							61	62	64										
48	P-118/119	9/4/2008	22	M.R.	750/750		62	64	63			74	72	73			P	A.S.	SM/SM
							63	62	61										
49	P-119/120	9/4/2008	19	C.L.	750/750		62	62	62			72	73	72			P	A.S.	SM/SM
							61	63	61										
50	P-121/122	10/3/2008	6	M.M.	850/700		82	86	88			96	96	98			P	A.S.	SM/SM
							84	80	86										
51	P-124/126	10/3/2008	22	M.R.	850/700		86	80	84			91	98	92			P	A.S.	SM/SM
							84	88	84										
52	P-142/145	10/3/2008	6	M.M.	850/700		80	86	80			90	96	90			P	A.S.	SM/SM
							81	82	86										

CDM

CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 5 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
53	P-126/128	10/3/2008	6	M.M.	850/700		73	86	82			98	100	92			P	A.S.	SM/SM
							86	80	81										
54	P-129/131	10/3/2008	6	M.M.	850/700		80	88	88			101	102	94			P	A.S.	SM/SM
							78	86	86										
55	P-133/134	10/3/2008	19	C.F.	850/700		88	84	82			99	102	100			P	A.S.	SM/SM
							86	84	88										
56	P-136/138	10/3/2008	22	M.R.	850/700		84	82	86			99	89	98			P	A.S.	SM/SM
							82	86	82										
57	P-140/142	10/3/2008	6	M.M.	850/700		88	90	86			100	96	95			P	A.S.	SM/SM
							89	84	84										
58	P-144/147	10/3/2008	6	M.M.	850/700		88	86	81			92	99	100			P	A.S.	SM/SM
							90	91	88										
59	P-148/149	10/3/2008	6	M.M.	850/700		86	84	88			98	99	102			P	A.S.	SM/SM
							81	86	84										
60	P-150/151	10/3/2008	6	M.M.	850/700		82	88	84			101	98	102			P	A.S.	SM/SM
							84	88	86										
61	P-151/153	10/3/2008	19	C.F.	850/700		82	81	84			106	97	100			P	A.S.	SM/SM
							88	90	84										
62	P-155/156	10/6/2008	22	M.R.	850/700		80	82	86			98	112	101			P	A.S.	SM/SM
							88	82	86										
63	P-158/160	10/6/2008	6	M.M.	850/700		86	84	88			99	104	101			P	A.S.	SM/SM
							81	86	82										
64	P-160/161	10/6/2008	22	M.R.	850/700		82	81	86			111	106	100			P	A.S.	SM/SM
							88	84	82										
65	P-163/164	10/6/2008	22	M.R.	850/700		87	82				91	92	90			P	A.S.	SM/SM
							89	81	82										

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 6 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
66	P-165/167	10/6/2008	6	M.M.	850/700		78	82	86			94	91	96			P	AS	SM/SM
							85	79	80										
67	P-177/179	10/6/2008	6	M.M.	850/700		81	86	82			96	89	91			P	AS	SM/SM
							84	80	82										
68	P-169/170	10/6/2008	6	M.M.	850/700		80	82	84			89	94	98			P	AS	SM/SM
							86	85	82										
69	P-183/185	10/8/2008	19	C.F.	850/700		80	82	81			90	88	96			P	AS	SM/SM
							80	79	78										
70	P-186/188	10/8/2008	22	M.R.	850/700		81	81	79			92	94	92			P	AS	SM/SM
							79	80	79										
71	P-190/191	10/8/2008	6	M.M.	850/700		78	86	81			100	96	92			P	AS	SM/SM
							79	82	80										
72	P-191/192	10/8/2008	22	M.R.	850/700		80	82	80			96	94	100			P	AS	SM/SM
							82	80	82										
73	P-192/194	10/8/2008	6	M.M.	850/700		78	77	81			101	94	96			P	AS	SM/SM
							83	89	78										
74	P-187/189	10/8/2008	19	C.F.	850/700		80	86	84			91	98	92			P	AS	SM/SM
							86	82	83										
75	P-195/197	10/8/2008	19	C.F.	850/700		81	81	86			99	94	96			P	AS	SM/SM
							84	78	82										
76	P-200/202	10/8/2008	19	C.F.	850/700		80	79	79			101	100	91			P	AS	SM/SM
							79	82	79										
77	P-198/199	10/8/2008	22	M.R.	850/700		82	84	80			104	101	98			P	AS	SM/SM
							80	82	82										
78	P-203/204	10/8/2008	6	M.M.	850/700		81	80				97	96	99			P	AS	SM/SM
							81	81	81										

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 7 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
79	P-206/207	10/8/2008	22	M.R.	850/700		84	81	81			100	95	94			P	AS	SM/SM
							86	82	82										
80	P-209/210	10/16/2008	6	M.M.	750/750		75	79	78			88	90	87			P	AS	SM/SM
							78	75	71										
81	P-212/213	10/16/2008	19	C.F.	750/750		72	72	71			91	90	86			P	AS	SM/SM
							79	80	74										
82	P-215/217	10/16/2008	22	M.R.	750/750		76	79	79			98	92	88			P	AS	SM/SM
							72	74	71										
83	P-219/220	10/16/2008	6	M.M.	750/750		71	74	76			84	82	90			P	AS	SM/SM
							82	84	75										
84	P-223/221	10/16/2008	22	M.R.	750/750		81	80	81			81	84	88			P	AS	SM/SM
							78	79	78										
85	P-224/229	10/16/2008	22	M.R.	750/750		80	76	74			90	91	84			P	AS	SM/SM
							71	82	76										
86	P-231/232	10/16/2008	6	M.M.	750/750		79	79	74			91	92	88			P	AS	SM/SM
							72	78	77										
87	P-238/240	10/16/2008	19	C.F.	750/750		72	76	79			90	81	86			P	AS	SM/TX
							71	74	70										
88	P-244/245	10/16/2008	22	M.R.	750/750		80	72	76			86	88	90			P	AS	SM/SM
							77	79	79										
89	P-246/247	10/16/2008	22	M.R.	750/750		80	78	76			84	86	81			P	AS	SM/SM
							74	76	76										
90	P-249/250	10/16/2008	22	M.R.	750/750		76	79	72			90	84	84			P	AS	SM/SM
							72	74	78										
91	P-253/253	10/16/2008	22	M.R.	750/750		78	72				87	88	81			P	AS	SM/SM
							74	70	71										

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 8 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
92	P-320/321	11/10/2008	6	M.M.	850/700		74	73	72			81	79	80			P	E.R.	SM/SM
							75	74	73										
93	P-319/320	11/10/2008	22	M.R.	750/750		73	74	72			82	81	82			P	E.R.	SM/SM
							72	74	73										
94	P-318/319	11/10/2008	6	M.M.	750/750		73	75	72			80	81	83			P	E.R.	SM/SM
							74	73	73										
95	P-317/318	11/10/2008	19	C.F.	750/750		75	74	76			83	84	83			P	E.R.	SM/SM
							73	73	75										
96	P-316/317	11/10/2008	6	M.M.	750/750		74	72	74			79	82	80			P	E.R.	SM/SM
							73	74	73										
97	P-307/316	11/10/2008	19	C.F.	750/750		72	73	73			78	79	79			P	E.R.	SM/SM
							74	72	71										
98	P-307/308	11/10/2008	22	M.R.	750/750		73	74	73			82	81	80			P	E.R.	SM/SM
							72	75	74										
99	P-307/309	11/10/2008	22	M.R.	750/750		73	72	75			80	79	78			P	E.R.	SM/SM
							72	74	73										
100	P-309/311	11/10/2008	6	M.M.	750/750		73	73	72			82	81	82			P	E.R.	SM/SM
							74	74	71										
101	P-311/312	11/10/2008	22	M.R.	750/750		72	72	72			82	80	81			P	E.R.	SM/SM
							72	71	73										
102	P-304/312	11/10/2008	22	M.R.	750/750		73	72	73			80	80	81			P	E.R.	SM/SM
							73	71	71										
103	P-313/314	11/10/2008	6	M.M.	750/750		73	72	71			78	79	80			P	E.R.	SM/TX
							74	72	73										
104	P-303/304	11/10/2008	6	M.M.	750/750		73	74				81	80	82			P	E.R.	SM/SM
							72	73	74										

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
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Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
105	P-301/303	11/10/2008	6	M.M.	850/700		73	73	73			80	81	82			P	E.R.	SM/SM
							72	73	73										
106	P-298/301	11/10/2008	22	M.R.	750/750		72	74	71			78	81	79			P	E.R.	SM/SM
							73	73	72										
107	P-296/298	11/10/2008	6	M.M.	750/750		71	70	72			81	81	79			P	E.R.	SM/SM
							72	73	73										
108	P-292/294	11/10/2008	6	M.M.	750/750		74	73	72			83	81	80			P	E.R.	SM/SM
							75	74	74										
109	P-273/274	11/10/2008	22	M.R.	750/750		73	73	75			81	83	82			P	E.R.	SM/SM
							74	73	76										
110	P-267/269	11/10/2008	6	M.M.	750/750		73	73	72			82	79	81			P	E.R.	SM/SM
							74	74	71										
111	P-263/265	11/10/2008	6	M.M.	750/750		72	73	73			84	83	83			P	E.R.	SM/SM
							71	72	72										
112	P-256/262	11/10/2008	6	M.M.	750/750		72	74	72			83	82	981			P	E.R.	SM/SM
							73	73	73										
113	P-257/259	11/10/2008	6	M.M.	750/750		71	74	72			81	84	84			P	E.R.	SM/SM
							73	70	72										
114	P-259/261	11/10/2008	22	M.R.	750/750		71	72	73			80	81	79			P	E.R.	SM/SM
							70	73	73										
115	P-261/284	11/10/2008	22	M.R.	750/750		72	74	73			82	83	84			P	E.R.	SM/TX
							73	75	74										
116	P-286/287	11/10/2008	6	M.M.	750/750		71	72	71			79	79	81			P	E.R.	SM/SM
							72	71	73										
117	P-282/283	11/10/2008	22	M.R.	750/750		72	74				81	82	81			P	E.R.	SM/SM
							73	73	72										

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 10 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
118	P-281/282	11/10/2008	6	M.M.	850/700		74	71	73			82	81	80			P	E.R.	SM/SM
							72	71	72										
119	P-277/281	11/10/2008	22	M.R.	750/750		72	72	71			80	81	81			P	E.R.	SM/SM
							71	73	72										
120	P-1/278	11/10/2008	6	M.M.	750/750		72	73	73			81	84	82			P	E.R.	SM/SM
							71	72	72										
121	P-321/322	11/20/2008	22	M.R.	800/750		74	76	72			82	86	88			P	E.R.	SM/SM
							70	78	71										
122	P-322/323	11/20/2008	22	M.R.	800/700		72	76	76			80	82	86			P	E.R.	SM/SM
							74	71	70										
123	P-323/324	11/20/2008	6	M.M.	800/700		76	80	71			88	82	82			P	E.R.	SM/SM
							72	72	74										
124	P-324/325	11/20/2008	19	C.F.	800/700		76	74	76			84	86	80			P	E.R.	SM/SM
							72	74	70										
125	P-325/326	11/20/2008	6	M.M.	800/700		71	78	76			86	86	88			P	E.R.	SM/SM
							70	76	72										
126	P-326/327	11/20/2008	19	C.F.	800/700		77	74	75			84	82	84			P	E.R.	SM/SM
							70	73	76										
127	P-327/328	11/20/2008	6	M.M.	800/700		72	78	72			90	82	82			P	E.R.	SM/SM
							70	71	76										
128	P-328/329	11/20/2008	22	M.R.	800/700		74	71	74			84	91	86			P	E.R.	SM/SM
							71	70	72										
129	P-329/330	11/20/2008	19	C.F.	800/700		74	74	76			88	80	85			P	E.R.	SM/SM
							80	76	74										
130	P-330/334	11/20/2008	6	M.M.	800/700		81	72				82	86	88			P	E.R.	SM/SM
							76	78	74										

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 11 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
131	P-332/333	11/10/2008	6	M.M.	800/700		72	74	72			89	91	84			P	E.R.	SM/SM
							78	76	76										
132	P-343/344	11/10/2008	19	C.F.	800/700		86	82	81			90	89	88			P	E.R.	SM/SM
							84	80	75										
133	P-345/347	11/10/2008	6	M.M.	800/700		76	74	72			87	85	82			P	E.R.	SM/SM
							78	72	71										
134	P-331/345	11/20/2008	19	C.F.	800/700		76	71	73			90	92	89			P	E.R.	SM/SM
							75	76	70										
135	P-331/332	11/20/2008	19	C.F.	800/700		78	74	71			88	89	87			P	E.R.	SM/SM
							78	71	79										
136	P-332/335	11/20/2008	6	M.M.	800/700		74	76	80			86	92	90			P	E.R.	SM/SM
							71	76	78										
137	P-335/338	11/20/2008	19	C.F.	800/700		76	76	71			99	96	96			P	E.R.	SM/SM
							72	74	72										
138	P-339/340	11/20/2008	6	M.M.	800/700		70	80	79			92	91	90			P	E.R.	SM/SM
							76	72	71										
139	P-349/350	1/31/2009	20	D.R.	860/600		91	84	89	96	81	93	101	115	95	98	P	E.F.	SM/SM
							83	83	86	87	92								
140	P-351/352	1/31/2009	25	R.O.	860/550		84	86	79	86	83	101	104	91	90	99	P	E.F.	SM/SM
							96	88	91	83	85								
141	P-352/354	1/31/2009	20	D.R.	860/600		85	91	95	95	90	100	100	98	90	99	P	E.F.	SM/SM
							90	81	83	89	79								
142	P-355/356	1/31/2009	25	R.O.	860/550		109	88	80	92	84	89	94	101	103	98	P	E.F.	SM/SM
							92	89	86	90	96								
143	P-358/359	1/31/2009	22	E.F.	860/600		80	92		83	90	96	99	92	100	102	P	E.F.	SM/SM
							84	94	99	99	84								

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CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 12 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
144	P-361/362	1/31/2009	20	D.R.	860/600		80	82	86	88	80	115	10	96	90	84	P	E.F.	SM/SM
							90	93	100	87	92								
145	P-362/363	1/31/2009	22	E.F.	860/600		92	87	90	85	96	90	95	100	97	96	P	E.F.	SM/SM
							86	93	84	89	101								
146	P-366/368	1/31/2009	25	R.O.	860/550		84	94	81	94	88	93	92	102	104	99	P	E.F.	SM/SM
							90	88	89	85	84								
147	P-371/373	1/31/2009	25	R.O.	860/550		81	89	80	93	85	97	96	89	100	102	P	E.F.	SM/SM
							80	84	86	84	80								
148	P-376/348	2/4/2009	20	D.R.	830/550		105	107	117	118	99	102	96	98	91	94	P	E.F.	SM/SM
							118	111	99	95	96								
149	P-376/377	2/4/2009	22	E.F.	830/650		117	97	122	101	93	94	93	110	115	120	P	E.F.	SM/SM
							90	97	108	100	96								
150	P-377/378	2/4/2009	25	R.O.	825/600		104	95	101	98	91	100	95	97	125	101	P	E.F.	SM/SM
							99	93	95	98	95								
151	P-378/379	2/4/2009	22	E.F.	830/650		94	115	98	96	101	101	105	98	93	108	P	E.F.	SM/SM
							110	99	93	100	106								
152	P-379/380	2/4/2009	20	D.R.	830/550		113	101	96	91	98	98	98	96	100	100	P	E.F.	SM/SM
							111	99	100	97	92								
153	P-412/411	2/13/2009	20	D.R.	800/550		75	76	80	81	75	88	90	88	82	85	P	I.F.	SM/TX
							87	84	85	85	75								
154	P-411/412	2/13/2009	20	D.R.	800/500		80	77	90	75	84	86	85	85	89	88	P	I.F.	SM/SM
							81	86	85	85	83								
155	P-411/409	2/13/2009	25	C.M.	860/550		87	86	85	88	87	86	81	85	89	85	P	I.F.	SM/SM
							84	81	80	83	82								
156	P-407/406	2/13/2009	20	D.R.	800/550		105	95		101	98	108	98	107	106	101	P	I.F.	SM/SM
							87	84	100	89	93								

CDM

CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 13 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
							Peel (ppi) IN / OUT					Shear (ppi)							
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	1	2	3	4	5	1	2	3	4	5			
157	P-405/403	2/13/2009	25	C.M.	860/550		89	95	84	80	94	98	88	101	98	102	P	I.F.	SM/SM
							84	88	89	95	89								
158	P-403/401	2/14/2009	22	E.F.	860/550		81	102	126	80	100	92	106	93	103	113	P	I.F.	SM/SM
							102	99	105	96	102								
159	P-401/399	2/14/2009	25	C.M.	860/550		110	90	94	102	92	102	104	115	100	102	P	I.F.	SM/SM
							113	99	99	103	99								
160	P-400/398	2/14/2009	22	E.F.	860/550		101	94	111	91	94	100	100	95	96	99	P	I.F.	SM/SM
							97	97	101	99	97								
161	P-398/396	2/14/2009	22	E.F.	860/550		96	96	98	97	96	95	97	99	93	97	P	I.F.	SM/SM
							81	96	95	94	99								
162	P-385/386	2/14/2009	25	C.M.	860/550		99	100	105	95	100	100	95	91	92	101	P	I.F.	SM/SM
							100	101	100	95	99								
163	P-396/395	2/14/2009	25	C.M.	860/550		102	92	89	91	100	99	94	98	100	99	P	I.F.	SM/SM
							99	89	91	93	98								
164	P-393/394	2/14/2009	20	D.R.	860/550		90	95	88	89	81	91	97	98	90	89	P	I.F.	SM/SM
							87	88	82	81	80								
165	P-391/393	2/14/2009	22	E.F.	860/500		80	80	87	87	82	92	98	100	91	100	P	I.F.	SM/SM
							81	80	86	86	88								
166	P-387/386	2/14/2009	25	C.M.	860/550		101	89	100	90	102	97	97	90	97	98	P	I.F.	SM/SM
							88	85	93	85	80								
167	P-385/384	2/14/2009	22	E.F.	860/550		86	83	100	90	99	87	87	90	93	95	P	I.F.	SM/SM
							93	86	83	80	88								
168	P-383/384	2/14/2009	20	D.R.	860/550		102	95	70	93	85	100	112	95	98	100	P	I.F.	SM/SM
							103	95	94	100	99								
169	P-381/382	2/14/2009	22	E.F.	860/550		100	90		91	80	100	97	98	100	102	P	I.F.	SM/SM
							104	90	89	92	84								

CDM

CQC Form 108
Geomembrane Seam DT Log

Project No.: 6172-55752
Project Name: North wake
Start Date: 8/12/2008
Project Location: raleigh NC
Page: 14 of 14

Material: LLDPE

40 mil Thickness

Project Seam Requirements

Fusion:		Extrusion:	
Peel:	50	Peel:	
Shear:	60	Shear:	

DT#	Location	Date Removed	Welder ID		Wedge	Extruder	Seam Strength										Pass Fail	Tech ID	Remarks
			Machine	Operator	Temp/ Speed °F/fpm	Temp/ Preheat °F/°F	Peel (ppi) IN / OUT					Shear (ppi)							
							1	2	3	4	5	1	2	3	4	5			
170	P-380/381	2/14/2009	20	D.R.	860/550		82	80	94	88	102	94	90	100	96	92	P	IF	SM/SM
							90	90	100	95	96								
171	P-375/415	2/20/2009	20	CM	860/550		90	97	108	112	97	107	117	110	109	111	P	IF	SM/SM
							98	107	107	99	100								
172	P-417/416	2/20/2009	20	CM	860/550		95	110	107	97	99	105	109	112	101	100	P	IF	SM/SM
							101	112	114	100	100								
173	P-418/419	2/20/2009	20	CM	860/550		117	107	98	113	107	116	109	114	112	111	P	IF	SM/SM
							99	98	115	95	99								

CDM

APPENDIX B-13

LLDPE Liner Destructive Laboratory Testing

Geotechnics
.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

August 18, 2008

Mr. Scott Brinkerhoff
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-01

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
8/18/08	NA	11	DT-1 to DT-10

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 11 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-1

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.4	SE1	<10
2	80.5	SE1	<10
3	80.4	SE1	<10
4	80.7	SE1	<10
5	79.8	SE1	<10
AVERAGE	**80.8**		
STD. DEV.	0.98		
INSIDE TRACK (WELD "B")			
1	76.0	SE1	<10
2	74.7	SE1	<10
3	75.0	SE1	<10
4	74.4	SE1	<10
5	75.8	SE1	<10
AVERAGE	**75.2**		
STD. DEV.	0.69		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.5	BRK
2	92.5	BRK
3	92.7	BRK
4	89.0	BRK
5	90.7	BRK
AVERAGE	**91.9**	
STD. DEV.	2.10	

CHECKED BY: GEM DATE: 8-19-08

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-2

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	80.9	SE1	<10
2	85.0	SE1	<10
3	83.8	SE1	<10
4	78.2	SE1	<10
5	85.2	SE1	<10
AVERAGE	**82.6**		
STD. DEV.	3.01		
INSIDE TRACK (WELD "B")			
1	77.8	SE1	<10
2	82.4	SE1	<10
3	82.4	SE1	<10
4	84.4	SE1	<10
5	80.2	SE1	<10
AVERAGE	**81.4**		
STD. DEV.	2.52		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.8	BRK
2	97.3	BRK
3	91.5	BRK
4	91.1	BRK
5	92.8	BRK
AVERAGE	**93.9**	
STD. DEV.	2.95	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-3

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	77.9	SE1	<10
2	79.5	SE1	<10
3	78.0	SE1	<10
4	78.0	SE1	<10
5	77.4	SE1	<10
AVERAGE	**78.2**		
STD. DEV.	0.79		
INSIDE TRACK (WELD "B")			
1	78.4	SE1	<10
2	78.9	SE1	<10
3	82.8	SE1	<10
4	79.1	SE1	<10
5	86.2	SE1	<10
AVERAGE	**81.1**		
STD. DEV.	3.36		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.6	BRK
2	89.4	BRK
3	90.6	BRK
4	91.8	BRK
5	93.0	BRK
AVERAGE	**91.7**	
STD. DEV.	1.72	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-4

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	76.0	SE1	<10
2	75.0	SE1	<10
3	73.8	SE1	<10
4	73.7	SE1	<10
5	69.8	SE1	<10
AVERAGE	**73.7**		
STD. DEV.	2.36		
INSIDE TRACK (WELD "B")			
1	81.0	SE1	<10
2	81.7	SE1	<10
3	76.5	SE1	<10
4	80.3	SE1	<10
5	76.6	SE1	<10
AVERAGE	**79.2**		
STD. DEV.	2.49		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	87.5	BRK
2	85.5	BRK
3	86.8	BRK
4	88.3	BRK
5	89.1	BRK
AVERAGE	**87.4**	
STD. DEV.	1.38	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-5

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.1	SE1	<10
2	80.5	SE1	<10
3	85.1	SE1	<10
4	80.9	SE1	<10
5	79.4	SE1	<10
AVERAGE	**81.6**		
STD. DEV.	2.18		
INSIDE TRACK (WELD "B")			
1	85.9	SE1	<10
2	83.0	SE1	<10
3	80.1	SE1	<10
4	82.4	SE1	<10
5	82.1	SE1	<10
AVERAGE	**82.7**		
STD. DEV.	2.09		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.9	BRK
2	87.3	BRK
3	87.4	BRK
4	90.2	BRK
5	87.6	BRK
AVERAGE	**88.9**	
STD. DEV.	2.07	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-6

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.2	SE1	<10
2	85.5	SE1	<10
3	85.3	SE1	<10
4	84.9	SE1	<10
5	87.6	SE1	<10
AVERAGE	**86.5**		
STD. DEV.	1.84		
INSIDE TRACK (WELD "B")			
1	85.3	SE1	<10
2	86.2	SE1	<10
3	85.7	SE1	<10
4	86.8	SE1	<10
5	84.3	SE1	<10
AVERAGE	**85.7**		
STD. DEV.	0.94		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.7	BRK
2	94.9	BRK
3	94.9	BRK
4	94.1	BRK
5	97.0	BRK
AVERAGE	**95.3**	
STD. DEV.	1.10	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-7

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.3	SE1	<10
2	87.8	SE1	<10
3	80.9	SE1	<10
4	85.0	SE1	<10
5	82.5	SE1	<10
AVERAGE	**84.1**		
STD. DEV.	2.61		
INSIDE TRACK (WELD "B")			
1	75.7	SE1	<10
2	86.0	SE1	<10
3	77.3	SE1	<10
4	77.5	SE1	<10
5	80.3	SE1	<10
AVERAGE	**79.4**		
STD. DEV.	4.06		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	92.2	BRK
2	97.9	BRK
3	101.7	BRK
4	103.0	BRK
5	95.8	BRK
AVERAGE	**98.1**	
STD. DEV.	4.39	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-8

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.1	SE1	<10
2	83.0	SE1	<10
3	84.7	SE1	<10
4	79.0	SE1	<10
5	87.1	SE1	<10
AVERAGE	**83.2**		
STD. DEV.	3.01		
INSIDE TRACK (WELD "B")			
1	82.5	SE1	<10
2	81.7	SE1	<10
3	85.7	SE1	<10
4	80.9	SE1	<10
5	82.3	SE1	<10
AVERAGE	**82.6**		
STD. DEV.	1.83		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.6	BRK
2	94.7	BRK
3	94.2	BRK
4	91.6	BRK
5	93.1	BRK
AVERAGE	**94.4**	
STD. DEV.	2.61	

CHECKED BY: GEM DATE: 8-18-08

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-9

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.3	SE1	<10
2	89.2	SE1	<10
3	89.7	SE1	<10
4	85.3	SE1	<10
5	85.6	SE1	<10
AVERAGE	**88.0**		
STD. DEV.	2.38		
INSIDE TRACK (WELD "B")			
1	80.0	SE1	<10
2	91.3	SE1	<10
3	89.3	SE1	<10
4	85.3	SE1	<10
5	84.1	SE1	<10
AVERAGE	**86.0**		
STD. DEV.	4.45		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.6	BRK
2	92.7	BRK
3	93.0	BRK
4	94.3	BRK
5	91.6	BRK
AVERAGE	**93.6**	
STD. DEV.	1.91	

CHECKED BY: GBM DATE: 8-18-08

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-10
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-10

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.0	SE1	<10
2	86.3	SE1	<10
3	88.9	SE1	<10
4	89.3	SE1	<10
5	92.1	SE1	<10
AVERAGE	**88.5**		
STD. DEV.	2.49		
INSIDE TRACK (WELD "B")			
1	84.7	SE1	<10
2	90.1	SE1	<10
3	80.2	SE1	<10
4	85.8	SE1	<10
5	79.8	SE1	<10
AVERAGE	**84.1**		
STD. DEV.	4.27		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.4	BRK
2	97.3	BRK
3	91.5	BRK
4	96.4	BRK
5	99.8	BRK
AVERAGE	**97.3**	
STD. DEV.	3.79	

CHECKED BY: GEM DATE: 8-18-08

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-606-06
LAB ID NO.: 2008-606-06-11
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-11

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.4	SE1	<10
2	85.0	SE1	<10
3	87.9	SE1	<10
4	92.1	SE1	<10
5	85.7	SE1	<10
AVERAGE	**87.8**		
STD. DEV.	2.79		
INSIDE TRACK (WELD "B")			
1	86.5	SE1	<10
2	81.5	SE1	<10
3	80.0	SE1	<10
4	83.3	SE1	<10
5	90.0	SE1	<10
AVERAGE	**84.3**		
STD. DEV.	4.02		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.6	BRK
2	98.5	BRK
3	95.9	BRK
4	96.0	BRK
5	96.3	BRK
AVERAGE	**96.9**	
STD. DEV.	1.14	

CHECKED BY: GBN DATE: 8-18-08

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Geotechnics
.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

August 20, 2008

Mr. Scott Brinkerhoff
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-02

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
8/20/08	NA	10	DT-12 to DT-21

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 10 Data Pages

2200 Westinghouse Boulevard • Suite 105 • Raleigh, NC 27604 • Phone (919) 876-0405 • Fax (919) 876-0460

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-12

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	80.7	SE1	<10
2	80.0	SE1	<10
3	78.6	SE1	<10
4	75.0	SE1	<10
5	81.1	SE1	<10
AVERAGE	**79.1**		
STD. DEV.	2.47		
INSIDE TRACK (WELD "B")			
1	80.2	SE1	<10
2	80.5	SE1	<10
3	80.0	SE1	<10
4	77.7	SE1	<10
5	78.8	SE1	<10
AVERAGE	**79.4**		
STD. DEV.	1.17		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.9	BRK
2	95.7	BRK
3	94.1	BRK
4	96.7	BRK
5	94.7	BRK
AVERAGE	**95.2**	
STD. DEV.	1.01	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-13

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.8	SE1	<10
2	85.3	SE1	<10
3	82.5	SE1	<10
4	83.0	SE1	<10
5	84.3	SE1	<10
AVERAGE	**84.4**		
STD. DEV.	1.74		
INSIDE TRACK (WELD "B")			
1	85.0	SE1	<10
2	85.3	SE1	<10
3	87.1	SE1	<10
4	83.8	SE1	<10
5	79.3	SE1	<10
AVERAGE	**84.1**		
STD. DEV.	2.93		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.2	BRK
2	107.2	BRK
3	97.5	BRK
4	98.7	BRK
5	99.5	BRK
AVERAGE	**100.4**	
STD. DEV.	3.87	

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\\Server\c\2008 PROJECTS\2008-618 HALLATON\[2008-618-02-02 PEEL AND SHEAR 2008-618-02-02

8/20/2008

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-14

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.8	SE1	<10
2	87.0	SE1	<10
3	89.8	SE1	<10
4	86.2	SE1	<10
5	81.7	SE1	<10
AVERAGE	**87.1**		
STD. DEV.	3.57		
INSIDE TRACK (WELD "B")			
1	83.4	SE1	<10
2	83.0	SE1	<10
3	82.8	SE1	<10
4	87.8	SE1	<10
5	79.9	SE1	<10
AVERAGE	**83.4**		
STD. DEV.	2.83		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.1	BRK
2	98.3	BRK
3	97.8	BRK
4	97.5	BRK
5	87.9	BRK
AVERAGE	**96.7**	
STD. DEV.	5.27	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-15

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	77.4	SE1	<10
2	78.1	SE1	<10
3	78.9	SE1	<10
4	79.7	SE1	<10
5	76.7	SE1	<10
AVERAGE	**78.2**		
STD. DEV.	1.19		
INSIDE TRACK (WELD "B")			
1	82.0	SE1	<10
2	84.1	SE1	<10
3	82.5	SE1	<10
4	83.9	SE1	<10
5	83.1	SE1	<10
AVERAGE	**83.1**		
STD. DEV.	0.90		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.3	BRK
2	93.3	BRK
3	96.2	BRK
4	93.2	BRK
5	91.8	BRK
AVERAGE	**93.2**	
STD. DEV.	1.91	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-16

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.6	SE1	<10
2	85.1	SE1	<10
3	86.0	SE1	<10
4	83.0	SE1	<10
5	83.3	SE1	<10
AVERAGE	**85.0**		
STD. DEV.	1.91		
INSIDE TRACK (WELD "B")			
1	86.7	SE1	<10
2	81.6	SE1	<10
3	83.7	SE1	<10
4	78.8	SE1	<10
5	82.0	SE1	<10
AVERAGE	**82.6**		
STD. DEV.	2.91		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	104.1	BRK
2	98.7	BRK
3	97.5	BRK
4	98.4	BRK
5	95.7	BRK
AVERAGE	**98.9**	
STD. DEV.	3.14	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-17

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.2	SE1	<10
2	85.9	SE1	<10
3	85.0	SE1	<10
4	89.3	SE1	<10
5	79.4	SE1	<10
AVERAGE	**85.2**		
STD. DEV.	3.60		
INSIDE TRACK (WELD "B")			
1	87.5	SE1	<10
2	86.3	SE1	<10
3	87.3	SE1	<10
4	84.2	SE1	<10
5	88.9	SE1	<10
AVERAGE	**86.8**		
STD. DEV.	1.74		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.4	BRK
2	93.4	BRK
3	98.1	BRK
4	98.8	BRK
5	97.1	BRK
AVERAGE	**96.6**	
STD. DEV.	2.18	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-18

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.5	SE1	<10
2	85.6	SE1	<10
3	84.2	SE1	<10
4	86.0	SE1	<10
5	85.7	SE1	<10
AVERAGE	**86.0**		
STD. DEV.	1.56		
INSIDE TRACK (WELD "B")			
1	80.7	SE1	<10
2	83.6	SE1	<10
3	82.4	SE1	<10
4	84.0	SE1	<10
5	82.0	SE1	<10
AVERAGE	**82.5**		
STD. DEV.	1.32		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.7	BRK
2	95.5	BRK
3	97.6	BRK
4	97.3	BRK
5	95.5	BRK
AVERAGE	**96.5**	
STD. DEV.	0.99	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-19

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.2	SE1	<10
2	87.3	SE1	<10
3	87.3	SE1	<10
4	86.4	SE1	<10
5	85.0	SE1	<10
AVERAGE	**86.6**		
STD. DEV.	0.99		
INSIDE TRACK (WELD "B")			
1	80.1	SE1	<10
2	84.7	SE1	<10
3	81.9	SE1	<10
4	81.0	SE1	<10
5	82.7	SE1	<10
AVERAGE	**82.1**		
STD. DEV.	1.76		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.8	BRK
2	97.2	BRK
3	99.5	BRK
4	99.4	BRK
5	98.9	BRK
AVERAGE	**98.4**	
STD. DEV.	1.27	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-20

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	81.0	SE1	<10
2	78.3	SE1	<10
3	76.3	SE1	<10
4	83.0	SE1	<10
5	80.9	SE1	<10
AVERAGE	**79.9**		
STD. DEV.	2.61		
INSIDE TRACK (WELD "B")			
1	83.1	SE1	<10
2	74.5	SE1	<10
3	72.5	SE1	<10
4	77.8	SE1	<10
5	79.9	SE1	<10
AVERAGE	**77.6**		
STD. DEV.	4.22		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.0	BRK
2	91.7	BRK
3	89.7	BRK
4	92.5	BRK
5	89.4	BRK
AVERAGE	**90.9**	
STD. DEV.	1.31	

CHECKED BY: GDM DATE: 8-20-08

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-02
LAB ID NO.: 2008-618-02-10
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-21

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.1	SE1	<10
2	91.7	SE1	<10
3	88.7	SE1	<10
4	88.1	SE1	<10
5	90.3	SE1	<10
AVERAGE	**88.4**		
STD. DEV.	3.27		
INSIDE TRACK (WELD "B")			
1	82.9	SE1	<10
2	80.7	SE1	<10
3	79.3	SE1	<10
4	80.4	SE1	<10
5	83.4	SE1	<10
AVERAGE	**81.3**		
STD. DEV.	1.74		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.2	BRK
2	91.9	BRK
3	103.3	BRK
4	87.4	BRK
5	101.5	BRK
AVERAGE	**95.7**	
STD. DEV.	6.65	

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Geotechnics

.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

August 26, 2008

Mr. Scott Brinkerhoff
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-03

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
8/21/08	NA	6	DT-22 to DT-27

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 6 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-03
LAB ID NO.: 2008-618-03-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-22

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	91.9	SE1	<10
2	92.7	SE1	<10
3	93.2	SE1	<10
4	90.1	SE1	<10
5	92.0	SE1	<10
AVERAGE	**92.0**		
STD. DEV.	1.18		
INSIDE TRACK (WELD "B")			
1	92.2	SE1	<10
2	92.9	SE1	<10
3	89.7	SE1	<10
4	88.7	SE1	<10
5	83.0	SE1	<10
AVERAGE	**89.3**		
STD. DEV.	3.92		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.5	BRK
2	102.2	BRK
3	101.3	BRK
4	96.9	BRK
5	99.1	BRK
AVERAGE	**99.4**	
STD. DEV.	2.31	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-03
LAB ID NO.: 2008-618-03-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-23

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.7	SE1	<10
2	86.0	SE1	<10
3	84.8	SE1	<10
4	84.3	SE1	<10
5	87.8	SE1	<10
AVERAGE	**85.3**		
STD. DEV.	1.62		
INSIDE TRACK (WELD "B")			
1	87.0	SE1	<10
2	88.0	SE1	<10
3	86.9	SE1	<10
4	85.8	SE1	<10
5	87.5	SE1	<10
AVERAGE	**87.0**		
STD. DEV.	0.82		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.9	BRK
2	92.8	BRK
3	96.3	BRK
4	93.5	BRK
5	99.1	BRK
AVERAGE	**94.7**	
STD. DEV.	2.95	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-03
LAB ID NO.: 2008-618-03-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-24

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.1	SE1	<10
2	91.4	SE1	<10
3	90.7	SE1	<10
4	88.0	SE1	<10
5	90.8	SE1	<10
AVERAGE	**90.0**		
STD. DEV.	1.41		
INSIDE TRACK (WELD "B")			
1	84.8	SE1	<10
2	83.4	SE1	<10
3	85.7	SE1	<10
4	84.1	SE1	<10
5	84.5	SE1	<10
AVERAGE	**84.5**		
STD. DEV.	0.85		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.5	BRK
2	94.1	BRK
3	94.3	BRK
4	94.1	BRK
5	90.4	BRK
AVERAGE	**93.3**	
STD. DEV.	1.64	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-03
LAB ID NO.: 2008-618-03-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-25

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.0	SE1	<10
2	93.2	SE1	<10
3	89.5	SE1	<10
4	87.1	SE1	<10
5	86.2	SE1	<10
AVERAGE	**88.4**		
STD. DEV.	3.02		
INSIDE TRACK (WELD "B")			
1	79.5	SE1	<10
2	80.5	SE1	<10
3	79.0	SE1	<10
4	80.6	SE1	<10
5	78.9	SE1	<10
AVERAGE	**79.7**		
STD. DEV.	0.81		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.5	BRK
2	99.2	BRK
3	92.0	BRK
4	96.2	BRK
5	99.0	BRK
AVERAGE	**96.8**	
STD. DEV.	2.94	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-03
LAB ID NO.: 2008-618-03-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-26

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.4	SE1	<10
2	87.3	SE1	<10
3	75.0	SE1	<10
4	80.1	SE1	<10
5	85.5	SE1	<10
AVERAGE	**82.5**		
STD. DEV.	4.94		
INSIDE TRACK (WELD "B")			
1	79.0	SE1	<10
2	76.8	SE1	<10
3	76.5	SE1	<10
4	78.6	SE1	<10
5	82.1	SE1	<10
AVERAGE	**78.6**		
STD. DEV.	2.24		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.5	BRK
2	99.2	BRK
3	92.0	BRK
4	96.2	BRK
5	99.0	BRK
AVERAGE	**96.8**	
STD. DEV.	2.94	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: THALLE CONSTRUCTION CO., INC.
CLIENT PROJECT: NORTH WAKE CO. MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-03
LAB ID NO.: 2008-618-03-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-27

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.4	SE1	<10
2	87.1	SE1	<10
3	88.2	SE1	<10
4	89.6	SE1	<10
5	87.3	SE1	<10
AVERAGE	**88.1**		
STD. DEV.	1.00		
INSIDE TRACK (WELD "B")			
1	82.1	SE1	<10
2	84.0	SE1	<10
3	82.9	SE1	<10
4	83.9	SE1	<10
5	83.5	SE1	<10
AVERAGE	**83.3**		
STD. DEV.	0.79		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	92.9	BRK
2	90.1	BRK
3	93.5	BRK
4	88.9	BRK
5	91.0	BRK
AVERAGE	**91.3**	
STD. DEV.	1.92	

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.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

August 27, 2008

Mr. Scott Brinkerhoff
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-04

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
8/25/08	NA	15	DT-28 to DT-42

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 15 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
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geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-28

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.4	SE1	<10
2	80.3	SE1	<10
3	81.2	SE1	<10
4	81.9	SE1	<10
5	80.1	SE1	<10
AVERAGE	**81.2**		
STD. DEV.	0.99		
INSIDE TRACK (WELD "B")			
1	84.2	SE1	<10
2	81.4	SE1	<10
3	79.8	SE1	<10
4	81.4	SE1	<10
5	84.1	SE1	<10
AVERAGE	**82.2**		
STD. DEV.	1.91		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.1	BRK
2	91.3	BRK
3	90.9	BRK
4	93.9	BRK
5	91.7	BRK
AVERAGE	**92.4**	
STD. DEV.	1.51	

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PEEL AND SHEAR TEST RESULTS
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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-29

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	78.5	SE1	<10
2	79.5	SE1	<10
3	77.6	SE1	<10
4	80.8	SE1	<10
5	79.6	SE1	<10
AVERAGE	**79.2**		
STD. DEV.	1.21		
INSIDE TRACK (WELD "B")			
1	82.0	SE1	<10
2	81.0	SE1	<10
3	80.4	SE1	<10
4	84.3	SE1	<10
5	80.1	SE1	<10
AVERAGE	**81.6**		
STD. DEV.	1.69		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.1	BRK
2	94.8	BRK
3	92.4	BRK
4	93.0	BRK
5	95.0	BRK
AVERAGE	**94.5**	
STD. DEV.	1.85	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-30

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.6	SE1	<10
2	88.2	SE1	<10
3	87.3	SE1	<10
4	86.5	SE1	<10
5	89.1	SE1	<10
AVERAGE	**87.9**		
STD. DEV.	1.04		
INSIDE TRACK (WELD "B")			
1	86.0	SE1	<10
2	87.6	SE1	<10
3	88.5	SE1	<10
4	86.9	SE1	<10
5	85.4	SE1	<10
AVERAGE	**86.9**		
STD. DEV.	1.24		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.8	BRK
2	100.9	BRK
3	101.5	BRK
4	98.4	BRK
5	98.0	BRK
AVERAGE	**98.9**	
STD. DEV.	2.31	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-31

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	80.4	SE1	<10
2	80.7	SE1	<10
3	78.7	SE1	<10
4	79.9	SE1	<10
5	83.2	SE1	<10
AVERAGE	**80.6**		
STD. DEV.	1.65		
INSIDE TRACK (WELD "B")			
1	85.7	SE1	<10
2	86.9	SE1	<10
3	84.2	SE1	<10
4	86.6	SE1	<10
5	88.1	SE1	<10
AVERAGE	**86.3**		
STD. DEV.	1.45		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.1	BRK
2	90.6	BRK
3	104.6	BRK
4	103.3	BRK
5	102.0	BRK
AVERAGE	**99.7**	
STD. DEV.	5.65	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-32

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.5	SE1	<10
2	82.1	SE1	<10
3	81.7	SE1	<10
4	85.5	SE1	<10
5	84.7	SE1	<10
AVERAGE	**84.3**		
STD. DEV.	2.42		
INSIDE TRACK (WELD "B")			
1	82.9	SE1	<10
2	88.0	SE1	<10
3	84.8	SE1	<10
4	88.8	SE1	<10
5	85.7	SE1	<10
AVERAGE	**86.0**		
STD. DEV.	2.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.3	BRK
2	87.2	BRK
3	98.7	BRK
4	95.1	BRK
5	91.6	BRK
AVERAGE	**92.8**	
STD. DEV.	4.33	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-33

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	93.2	SE1	<10
2	91.0	SE1	<10
3	91.8	SE1	<10
4	89.9	SE1	<10
5	85.1	SE1	<10
AVERAGE	**90.2**		
STD. DEV.	3.09		
INSIDE TRACK (WELD "B")			
1	78.7	SE1	<10
2	84.7	SE1	<10
3	83.5	SE1	<10
4	88.9	SE1	<10
5	83.6	SE1	<10
AVERAGE	**83.9**		
STD. DEV.	3.64		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.0	BRK
2	103.0	BRK
3	98.8	BRK
4	100.2	BRK
5	97.2	BRK
AVERAGE	**100.2**	
STD. DEV.	2.35	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-34

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	81.2	SE1	<10
2	85.9	SE1	<10
3	87.0	SE1	<10
4	79.8	SE1	<10
5	82.3	SE1	<10
AVERAGE	**83.2**		
STD. DEV.	3.09		
INSIDE TRACK (WELD "B")			
1	83.0	SE1	<10
2	88.1	SE1	<10
3	90.0	SE1	<10
4	80.3	SE1	<10
5	82.1	SE1	<10
AVERAGE	**84.7**		
STD. DEV.	4.14		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.5	BRK
2	101.0	BRK
3	98.3	BRK
4	92.1	BRK
5	103.5	BRK
AVERAGE	**98.5**	
STD. DEV.	4.28	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-35

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	75.9	SE1	<10
2	81.1	SE1	<10
3	85.7	SE1	<10
4	82.4	SE1	<10
5	81.0	SE1	<10
AVERAGE	**81.2**		
STD. DEV.	3.53		
INSIDE TRACK (WELD "B")			
1	80.5	SE1	<10
2	78.9	SE1	<10
3	79.1	SE1	<10
4	85.1	SE1	<10
5	78.4	SE1	<10
AVERAGE	**80.4**		
STD. DEV.	2.74		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	90.9	BRK
2	103.1	BRK
3	100.3	BRK
4	99.8	BRK
5	91.7	BRK
AVERAGE	**97.2**	
STD. DEV.	5.50	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-36

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.4	SE1	<10
2	88.2	SE1	<10
3	89.1	SE1	<10
4	90.0	SE1	<10
5	84.1	SE1	<10
AVERAGE	**87.8**		
STD. DEV.	2.27		
INSIDE TRACK (WELD "B")			
1	78.4	SE1	<10
2	82.1	SE1	<10
3	78.3	SE1	<10
4	79.6	SE1	<10
5	85.7	SE1	<10
AVERAGE	**80.8**		
STD. DEV.	3.13		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.0	BRK
2	98.8	BRK
3	93.1	BRK
4	100.8	BRK
5	99.8	BRK
AVERAGE	**97.5**	
STD. DEV.	3.30	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-10
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-37

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.9	SE1	<10
2	82.2	SE1	<10
3	89.0	SE1	<10
4	84.3	SE1	<10
5	88.2	SE1	<10
AVERAGE	**86.5**		
STD. DEV.	3.09		
INSIDE TRACK (WELD "B")			
1	79.6	SE1	<10
2	79.8	SE1	<10
3	75.2	SE1	<10
4	79.8	SE1	<10
5	81.6	SE1	<10
AVERAGE	**79.2**		
STD. DEV.	2.38		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.0	BRK
2	98.8	BRK
3	93.1	BRK
4	100.8	BRK
5	99.8	BRK
AVERAGE	**97.5**	
STD. DEV.	3.30	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-11
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-38

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.3	SE1	<10
2	82.5	SE1	<10
3	90.7	SE1	<10
4	84.0	SE1	<10
5	80.2	SE1	<10
AVERAGE	**84.7**		
STD. DEV.	4.00		
INSIDE TRACK (WELD "B")			
1	79.5	SE1	<10
2	81.4	SE1	<10
3	81.7	SE1	<10
4	90.6	SE1	<10
5	86.6	SE1	<10
AVERAGE	**84.0**		
STD. DEV.	4.54		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.7	BRK
2	99.5	BRK
3	95.4	BRK
4	87.8	BRK
5	95.0	BRK
AVERAGE	**95.3**	
STD. DEV.	4.62	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-12
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-39

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.5	SE1	<10
2	81.6	SE1	<10
3	84.4	SE1	<10
4	82.8	SE1	<10
5	83.8	SE1	<10
AVERAGE	**83.4**		
STD. DEV.	1.22		
INSIDE TRACK (WELD "B")			
1	76.3	SE1	<10
2	78.1	SE1	<10
3	79.1	SE1	<10
4	81.9	SE1	<10
5	77.1	SE1	<10
AVERAGE	**78.5**		
STD. DEV.	2.17		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.0	BRK
2	92.4	BRK
3	92.1	BRK
4	90.5	BRK
5	95.7	BRK
AVERAGE	**92.9**	
STD. DEV.	1.98	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-13
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-40

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.2	SE1	<10
2	91.0	SE1	<10
3	91.3	SE1	<10
4	84.5	SE1	<10
5	88.5	SE1	<10
AVERAGE	**88.9**		
STD. DEV.	2.73		
INSIDE TRACK (WELD "B")			
1	74.1	SE1	<10
2	84.5	SE1	<10
3	73.7	SE1	<10
4	80.8	SE1	<10
5	83.6	SE1	<10
AVERAGE	**79.3**		
STD. DEV.	5.15		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.6	BRK
2	99.0	BRK
3	99.5	BRK
4	108.8	BRK
5	100.9	BRK
AVERAGE	**102.0**	
STD. DEV.	3.96	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-14
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-41

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	91.8	SE1	<10
2	90.0	SE1	<10
3	90.5	SE1	<10
4	86.3	SE1	<10
5	85.3	SE1	<10
AVERAGE	**88.8**		
STD. DEV.	2.82		
INSIDE TRACK (WELD "B")			
1	92.1	SE1	<10
2	90.3	SE1	<10
3	90.0	SE1	<10
4	90.3	SE1	<10
5	92.1	SE1	<10
AVERAGE	**91.0**		
STD. DEV.	1.05		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	103.7	BRK
2	105.2	BRK
3	97.6	BRK
4	94.3	BRK
5	100.7	BRK
AVERAGE	**100.3**	
STD. DEV.	4.44	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-04
LAB ID NO.: 2008-618-04-15
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-42

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.6	SE1	<10
2	90.1	SE1	<10
3	88.7	SE1	<10
4	92.1	SE1	<10
5	88.2	SE1	<10
AVERAGE	**89.7**		
STD. DEV.	1.51		
INSIDE TRACK (WELD "B")			
1	86.4	SE1	<10
2	88.0	SE1	<10
3	79.3	SE1	<10
4	80.8	SE1	<10
5	83.1	SE1	<10
AVERAGE	**83.5**		
STD. DEV.	3.67		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.2	BRK
2	109.1	BRK
3	95.7	BRK
4	101.9	BRK
5	99.5	BRK
AVERAGE	**100.7**	
STD. DEV.	5.26	

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.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

September 5, 2008

Mr. Scott Brinkerhoff
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-05

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
9/4/08	NA	7	DT-43 to DT-49

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 7 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-05
LAB ID NO.: 2008-618-05-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-43

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.1	SE1	<10
2	86.7	SE1	<10
3	82.9	SE1	<10
4	84.7	SE1	<10
5	85.3	SE1	<10
AVERAGE	**85.1**		
STD. DEV.	1.47		
INSIDE TRACK (WELD "B")			
1	77.0	SE1	<10
2	78.4	SE1	<10
3	86.3	SE1	<10
4	80.5	SE1	<10
5	77.9	SE1	<10
AVERAGE	**80.0**		
STD. DEV.	3.74		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.7	BRK
2	98.0	BRK
3	97.3	BRK
4	99.1	BRK
5	93.4	BRK
AVERAGE	**96.9**	
STD. DEV.	2.15	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-05
LAB ID NO.: 2008-618-05-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-44

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	80.6	SE1	<10
2	77.5	SE1	<10
3	81.7	SE1	<10
4	88.1	SE1	<10
5	78.9	SE1	<10
AVERAGE	**81.4**		
STD. DEV.	4.09		
INSIDE TRACK (WELD "B")			
1	87.9	SE1	<10
2	80.3	SE1	<10
3	87.0	SE1	<10
4	79.8	SE1	<10
5	87.4	SE1	<10
AVERAGE	**84.5**		
STD. DEV.	4.06		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.8	BRK
2	98.1	BRK
3	94.7	BRK
4	92.4	BRK
5	97.1	BRK
AVERAGE	**95.8**	
STD. DEV.	2.28	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-05
LAB ID NO.: 2008-618-05-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-45

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.4	SE1	<10
2	86.5	SE1	<10
3	83.2	SE1	<10
4	82.6	SE1	<10
5	87.7	SE1	<10
AVERAGE	**84.9**		
STD. DEV.	2.17		
INSIDE TRACK (WELD "B")			
1	88.5	SE1	<10
2	79.9	SE1	<10
3	84.7	SE1	<10
4	83.4	SE1	<10
5	88.4	SE1	<10
AVERAGE	**85.0**		
STD. DEV.	3.62		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	100.2	BRK
2	97.7	BRK
3	101.2	BRK
4	95.5	BRK
5	95.1	BRK
AVERAGE	**97.9**	
STD. DEV.	2.73	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-05
LAB ID NO.: 2008-618-05-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-46

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.8	SE1	<10
2	82.4	SE1	<10
3	87.9	SE1	<10
4	78.1	SE1	<10
5	81.7	SE1	<10
AVERAGE	**82.0**		
STD. DEV.	3.71		
INSIDE TRACK (WELD "B")			
1	80.4	SE1	<10
2	76.5	SE1	<10
3	83.4	SE1	<10
4	82.6	SE1	<10
5	77.8	SE1	<10
AVERAGE	**80.1**		
STD. DEV.	2.98		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.0	BRK
2	91.9	BRK
3	87.9	BRK
4	95.8	BRK
5	95.6	BRK
AVERAGE	**92.8**	
STD. DEV.	3.23	

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9/5/2008

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-05
LAB ID NO.: 2008-618-05-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-47

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.5	SE1	<10
2	83.1	SE1	<10
3	80.9	SE1	<10
4	79.3	SE1	<10
5	82.1	SE1	<10
AVERAGE	**82.4**		
STD. DEV.	2.70		
INSIDE TRACK (WELD "B")			
1	86.0	SE1	<10
2	80.1	SE1	<10
3	82.3	SE1	<10
4	90.2	SE1	<10
5	90.7	SE1	<10
AVERAGE	**85.9**		
STD. DEV.	4.69		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.6	BRK
2	81.9	BRK
3	89.7	BRK
4	98.1	BRK
5	99.8	BRK
AVERAGE	**94.2**	
STD. DEV.	8.26	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-05
LAB ID NO.: 2008-618-05-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-48

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.4	SE1	<10
2	88.8	SE1	<10
3	85.0	SE1	<10
4	82.8	SE1	<10
5	81.6	SE1	<10
AVERAGE	**84.3**		
STD. DEV.	2.79		
INSIDE TRACK (WELD "B")			
1	86.7	SE1	<10
2	81.9	SE1	<10
3	82.5	SE1	<10
4	85.4	SE1	<10
5	81.9	SE1	<10
AVERAGE	**83.7**		
STD. DEV.	2.23		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.4	BRK
2	94.0	BRK
3	94.3	BRK
4	99.0	BRK
5	95.9	BRK
AVERAGE	**96.1**	
STD. DEV.	2.11	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-05
LAB ID NO.: 2008-618-05-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-49

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.4	SE1	<10
2	79.9	SE1	<10
3	83.1	SE1	<10
4	80.9	SE1	<10
5	78.8	SE1	<10
AVERAGE	**81.4**		
STD. DEV.	2.30		
INSIDE TRACK (WELD "B")			
1	87.1	SE1	<10
2	83.6	SE1	<10
3	87.7	SE1	<10
4	86.1	SE1	<10
5	89.7	SE1	<10
AVERAGE	**86.8**		
STD. DEV.	2.24		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.1	BRK
2	93.8	BRK
3	97.1	BRK
4	98.1	BRK
5	99.0	BRK
AVERAGE	**96.2**	
STD. DEV.	2.63	

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.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

October 9, 2008

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-06

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
10/08/08	NA	19	DT-50 to DT-68

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 19 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-01
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-50

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.3	SE-1	<10
2	86.0	SE-1	<10
3	86.6	SE-1	<10
4	86.5	SE-1	<10
5	81.3	SE-1	<10
AVERAGE	**83.9**		
STD. DEV.	3.40		
INSIDE TRACK (WELD "B")			
1	81.4	SE-1	<10
2	87.5	SE-1	<10
3	82.9	SE-1	<10
4	86.9	SE-1	<10
5	82.4	SE-1	<10
AVERAGE	**84.2**		
STD. DEV.	2.78		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.2	SE-1
2	88.1	SE-1
3	87.5	SE-1
4	92.9	SE-1
5	93.1	SE-1
AVERAGE	**91.0**	
STD. DEV.	2.89	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-02
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-51

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.1	SE-1	<10
2	81.6	SE-1	<10
3	80.0	SE-1	<10
4	80.7	SE-1	<10
5	79.1	SE-1	<10
AVERAGE	**80.9**		
STD. DEV.	1.53		
INSIDE TRACK (WELD "B")			
1	86.4	SE-1	<10
2	87.8	SE-1	<10
3	76.4	SE-1	<10
4	80.5	SE-1	<10
5	77.3	SE-1	<10
AVERAGE	**81.7**		
STD. DEV.	5.20		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	92.5	SE-1
2	91.8	SE-1
3	91.0	SE-1
4	89.8	SE-1
5	90.5	SE-1
AVERAGE	**91.1**	
STD. DEV.	1.06	

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10/7/2008

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-03
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-52

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	95.8	SE-1	<10
2	93.0	SE-1	<10
3	93.1	SE-1	<10
4	92.8	SE-1	<10
5	92.8	SE-1	<10
AVERAGE	**93.5**		
STD. DEV.	1.29		
INSIDE TRACK (WELD "B")			
1	91.1	SE-1	<10
2	86.6	SE-1	<10
3	87.6	SE-1	<10
4	87.1	SE-1	<10
5	86.7	SE-1	<10
AVERAGE	**87.8**		
STD. DEV.	1.88		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.8	SE-1
2	99.6	SE-1
3	98.4	SE-1
4	99.1	SE-1
5	97.9	SE-1
AVERAGE	**99.4**	
STD. DEV.	1.51	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-04
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-53

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	78.3	SE-1	<10
2	81.7	SE-1	<10
3	72.5	SE-1	<10
4	93.7	SE-1	<10
5	87.5	SE-1	<10
AVERAGE	**82.7**		
STD. DEV.	8.19		
INSIDE TRACK (WELD "B")			
1	94.7	SE-1	<10
2	92.4	SE-1	<10
3	91.1	SE-1	<10
4	90.9	SE-1	<10
5	87.6	SE-1	<10
AVERAGE	**91.3**		
STD. DEV.	2.58		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	100.9	SE-1
2	100.6	SE-1
3	99.9	SE-1
4	101.0	SE-1
5	101.6	SE-1
AVERAGE	**100.8**	
STD. DEV.	0.62	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-05
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-54

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.6	SE-1	<10
2	89.5	SE-1	<10
3	88.5	SE-1	<10
4	89.6	SE-1	<10
5	89.9	SE-1	<10
AVERAGE	**89.4**		
STD. DEV.	0.54		
INSIDE TRACK (WELD "B")			
1	95.0	SE-1	<10
2	94.0	SE-1	<10
3	91.3	SE-1	<10
4	92.7	SE-1	<10
5	91.7	SE-1	<10
AVERAGE	**92.9**		
STD. DEV.	1.55		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.7	SE-1
2	97.5	SE-1
3	97.6	SE-1
4	94.6	SE-1
5	97.9	SE-1
AVERAGE	**97.3**	
STD. DEV.	1.56	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-06
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-55

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	94.8	SE-1	<10
2	93.4	SE-1	<10
3	91.8	SE-1	<10
4	91.8	SE-1	<10
5	92.3	SE-1	<10
AVERAGE	**92.8**		
STD. DEV.	1.29		
INSIDE TRACK (WELD "B")			
1	97.1	SE-1	<10
2	95.9	SE-1	<10
3	94.2	SE-1	<10
4	93.1	SE-1	<10
5	93.2	SE-1	<10
AVERAGE	**94.7**		
STD. DEV.	1.75		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	105.8	SE-1
2	102.2	SE-1
3	100.5	SE-1
4	100.6	SE-1
5	100.6	SE-1
AVERAGE	**101.9**	
STD. DEV.	2.27	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-07
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-56

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.2	SE-1	<10
2	95.0	SE-1	<10
3	93.1	SE-1	<10
4	92.6	SE-1	<10
5	91.0	SE-1	<10
AVERAGE	**92.4**		
STD. DEV.	1.88		
INSIDE TRACK (WELD "B")			
1	90.0	SE-1	<10
2	91.7	SE-1	<10
3	90.3	SE-1	<10
4	90.0	SE-1	<10
5	92.0	SE-1	<10
AVERAGE	**90.8**		
STD. DEV.	0.97		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.9	SE-1
2	98.7	SE-1
3	97.6	SE-1
4	96.3	SE-1
5	95.9	SE-1
AVERAGE	**97.7**	
STD. DEV.	1.66	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-08
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-57

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	94.2	SE-1	<10
2	91.4	SE-1	<10
3	86.6	SE-1	<10
4	84.6	SE-1	<10
5	90.7	SE-1	<10
AVERAGE	**89.5**		
STD. DEV.	3.86		
INSIDE TRACK (WELD "B")			
1	89.5	SE-1	<10
2	93.0	SE-1	<10
3	94.9	SE-1	<10
4	94.5	SE-1	<10
5	93.9	SE-1	<10
AVERAGE	**93.2**		
STD. DEV.	2.17		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.6	SE-1
2	98.2	SE-1
3	99.5	SE-1
4	99.5	SE-1
5	99.7	SE-1
AVERAGE	**98.9**	
STD. DEV.	0.94	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-09
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-58

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	91.4	SE-1	<10
2	90.0	SE-1	<10
3	88.4	SE-1	<10
4	87.5	SE-1	<10
5	92.2	SE-1	<10
AVERAGE	**89.9**		
STD. DEV.	1.97		
INSIDE TRACK (WELD "B")			
1	92.3	SE-1	<10
2	93.3	SE-1	<10
3	95.2	SE-1	<10
4	93.8	SE-1	<10
5	95.5	SE-1	<10
AVERAGE	**94.0**		
STD. DEV.	1.33		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.8	SE-1
2	101.5	SE-1
3	102.9	SE-1
4	102.0	SE-1
5	104.0	SE-1
AVERAGE	**102.6**	
STD. DEV.	0.96	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-10
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-59

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.7	SE-1	<10
2	89.7	SE-1	<10
3	88.0	SE-1	<10
4	88.2	SE-1	<10
5	87.4	SE-1	<10
AVERAGE	**88.6**		
STD. DEV.	1.05		
INSIDE TRACK (WELD "B")			
1	94.0	SE-1	<10
2	92.7	SE-1	<10
3	94.1	SE-1	<10
4	95.1	SE-1	<10
5	95.0	SE-1	<10
AVERAGE	**94.2**		
STD. DEV.	0.97		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.0	SE-1
2	101.0	SE-1
3	100.3	SE-1
4	101.2	SE-1
5	100.8	SE-1
AVERAGE	**100.9**	
STD. DEV.	0.34	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-11
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-60

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	92.4	SE-1	<10
2	94.6	SE-1	<10
3	93.7	SE-1	<10
4	94.2	SE-1	<10
5	94.6	SE-1	<10
AVERAGE	**93.9**		
STD. DEV.	0.92		
INSIDE TRACK (WELD "B")			
1	87.5	SE-1	<10
2	90.8	SE-1	<10
3	89.6	SE-1	<10
4	88.6	SE-1	<10
5	88.1	SE-1	<10
AVERAGE	**88.9**		
STD. DEV.	1.30		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.0	SE-1
2	100.3	SE-1
3	100.3	SE-1
4	99.1	SE-1
5	100.3	SE-1
AVERAGE	**100.4**	
STD. DEV.	1.03	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-12
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-61

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	94.7	SE-1	<10
2	93.6	SE-1	<10
3	92.3	SE-1	<10
4	91.6	SE-1	<10
5	92.7	SE-1	<10
AVERAGE	**93.0**		
STD. DEV.	1.20		
INSIDE TRACK (WELD "B")			
1	93.8	SE-1	<10
2	92.7	SE-1	<10
3	91.3	SE-1	<10
4	94.1	SE-1	<10
5	86.7	SE-1	<10
AVERAGE	**91.7**		
STD. DEV.	3.01		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	100.5	SE-1
2	99.2	SE-1
3	100.3	SE-1
4	99.9	SE-1
5	98.9	SE-1
AVERAGE	**99.8**	
STD. DEV.	0.69	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-13
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-62

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	73.9	SE-1	<10
2	78.4	SE-1	<10
3	77.2	SE-1	<10
4	76.4	SE-1	<10
5	73.6	SE-1	<10
AVERAGE	**75.9**		
STD. DEV.	2.09		
INSIDE TRACK (WELD "B")			
1	81.8	SE-1	<10
2	80.6	SE-1	<10
3	80.8	SE-1	<10
4	81.3	SE-1	<10
5	80.8	SE-1	<10
AVERAGE	**81.1**		
STD. DEV.	0.49		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	89.3	SE-1
2	90.5	SE-1
3	88.9	SE-1
4	87.8	SE-1
5	87.0	SE-1
AVERAGE	**88.7**	
STD. DEV.	1.35	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-14
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-63

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	93.5	SE-1	<10
2	89.8	SE-1	<10
3	92.5	SE-1	<10
4	90.8	SE-1	<10
5	91.2	SE-1	<10
AVERAGE	**91.6**		
STD. DEV.	1.45		
INSIDE TRACK (WELD "B")			
1	93.6	SE-1	<10
2	92.0	SE-1	<10
3	93.1	SE-1	<10
4	92.8	SE-1	<10
5	94.1	SE-1	<10
AVERAGE	**93.1**		
STD. DEV.	0.80		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.8	SE-1
2	100.5	SE-1
3	100.2	SE-1
4	100.3	SE-1
5	98.1	SE-1
AVERAGE	**99.8**	
STD. DEV.	0.97	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-15
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-64

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.7	SE-1	<10
2	85.9	SE-1	<10
3	87.6	SE-1	<10
4	86.8	SE-1	<10
5	88.3	SE-1	<10
AVERAGE	**87.1**		
STD. DEV.	0.92		
INSIDE TRACK (WELD "B")			
1	88.0	SE-1	<10
2	92.6	SE-1	<10
3	94.8	SE-1	<10
4	92.6	SE-1	<10
5	91.7	SE-1	<10
AVERAGE	**91.9**		
STD. DEV.	2.48		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.9	SE-1
2	100.9	SE-1
3	100.4	SE-1
4	100.5	SE-1
5	100.7	SE-1
AVERAGE	**100.9**	
STD. DEV.	0.60	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-16
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-65

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.3	SE-1	<10
2	83.6	SE-1	<10
3	81.5	SE-1	<10
4	82.4	SE-1	<10
5	79.6	SE-1	<10
AVERAGE	**82.5**		
STD. DEV.	2.15		
INSIDE TRACK (WELD "B")			
1	84.8	SE-1	<10
2	82.5	SE-1	<10
3	82.8	SE-1	<10
4	83.6	SE-1	<10
5	83.7	SE-1	<10
AVERAGE	**83.5**		
STD. DEV.	0.90		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.4	SE-1
2	93.2	SE-1
3	92.0	SE-1
4	92.1	SE-1
5	91.5	SE-1
AVERAGE	**92.6**	
STD. DEV.	1.16	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-17
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-66

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.7	SE-1	<10
2	87.6	SE-1	<10
3	85.8	SE-1	<10
4	86.4	SE-1	<10
5	86.3	SE-1	<10
AVERAGE	**86.8**		
STD. DEV.	0.84		
INSIDE TRACK (WELD "B")			
1	75.2	SE-1	<10
2	80.9	SE-1	<10
3	81.1	SE-1	<10
4	80.6	SE-1	<10
5	78.6	SE-1	<10
AVERAGE	**79.3**		
STD. DEV.	2.49		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	92.3	SE-1
2	93.7	SE-1
3	93.2	SE-1
4	92.0	SE-1
5	90.9	SE-1
AVERAGE	**92.4**	
STD. DEV.	1.09	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-18
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-67

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.9	SE-1	<10
2	88.1	SE-1	<10
3	90.1	SE-1	<10
4	89.5	SE-1	<10
5	88.2	SE-1	<10
AVERAGE	**89.4**		
STD. DEV.	1.21		
INSIDE TRACK (WELD "B")			
1	88.7	SE-1	<10
2	88.8	SE-1	<10
3	89.6	SE-1	<10
4	89.0	SE-1	<10
5	88.5	SE-1	<10
AVERAGE	**88.9**		
STD. DEV.	0.42		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.1	SE-1
2	95.5	SE-1
3	96.7	SE-1
4	96.2	SE-1
5	95.7	SE-1
AVERAGE	**96.4**	
STD. DEV.	1.04	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-06
LAB ID NO.: 2008-618-06-19
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-68

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.9	SE-1	<10
2	87.9	SE-1	<10
3	90.7	SE-1	<10
4	93.5	SE-1	<10
5	92.2	SE-1	<10
AVERAGE	**91.0**		
STD. DEV.	2.09		
INSIDE TRACK (WELD "B")			
1	95.7	SE-1	<10
2	94.6	SE-1	<10
3	92.7	SE-1	<10
4	92.5	SE-1	<10
5	94.6	SE-1	<10
AVERAGE	**94.0**		
STD. DEV.	1.37		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.5	SE-1
2	102.0	SE-1
3	102.8	SE-1
4	102.6	SE-1
5	101.7	SE-1
AVERAGE	**102.1**	
STD. DEV.	0.56	

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LABORATORY TEST REPORT

October 10, 2008

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-07

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
10/09/08	NA	11	DT-69 to DT-79

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 11 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-01
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-69

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.7	SE-1	<10
2	86.9	SE-1	<10
3	82.6	SE-1	<10
4	84.8	SE-1	<10
5	84.6	SE-1	<10
AVERAGE	**84.9**		
STD. DEV.	1.58		
INSIDE TRACK (WELD "B")			
1	81.0	SE-1	<10
2	80.7	SE-1	<10
3	79.3	SE-1	<10
4	82.6	SE-1	<10
5	82.1	SE-1	<10
AVERAGE	**81.1**		
STD. DEV.	1.29		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	86.5	SE-1
2	89.3	SE-1
3	89.0	SE-1
4	89.5	SE-1
5	90.2	SE-1
AVERAGE	**88.9**	
STD. DEV.	1.41	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-02
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-70

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	81.0	SE-1	<10
2	82.8	SE-1	<10
3	85.7	SE-1	<10
4	84.6	SE-1	<10
5	84.2	SE-1	<10
AVERAGE	**83.7**		
STD. DEV.	1.81		
INSIDE TRACK (WELD "B")			
1	81.2	SE-1	<10
2	82.4	SE-1	<10
3	83.0	SE-1	<10
4	82.5	SE-1	<10
5	80.9	SE-1	<10
AVERAGE	**82.0**		
STD. DEV.	0.90		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	89.3	SE-1
2	89.4	SE-1
3	88.6	SE-1
4	89.7	SE-1
5	89.4	SE-1
AVERAGE	**89.3**	
STD. DEV.	0.41	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-03
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-71

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	75.1	SE-1	<10
2	70.1	SE-1	<10
3	75.0	SE-1	<10
4	75.3	SE-1	<10
5	75.8	SE-1	<10
AVERAGE	**74.3**		
STD. DEV.	2.35		
INSIDE TRACK (WELD "B")			
1	75.9	SE-1	<10
2	79.1	SE-1	<10
3	79.5	SE-1	<10
4	80.5	SE-1	<10
5	80.4	SE-1	<10
AVERAGE	**79.1**		
STD. DEV.	1.87		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	85.8	SE-1
2	86.6	SE-1
3	86.3	SE-1
4	86.1	SE-1
5	84.5	SE-1
AVERAGE	**85.9**	
STD. DEV.	0.81	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-04
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-72

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.0	SE-1	<10
2	82.1	SE-1	<10
3	82.5	SE-1	<10
4	79.9	SE-1	<10
5	83.2	SE-1	<10
AVERAGE	**82.5**		
STD. DEV.	1.85		
INSIDE TRACK (WELD "B")			
1	74.1	SE-1	<10
2	77.6	SE-1	<10
3	76.3	SE-1	<10
4	73.1	SE-1	<10
5	74.1	SE-1	<10
AVERAGE	**75.0**		
STD. DEV.	1.85		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	87.1	SE-1
2	87.9	SE-1
3	87.0	SE-1
4	88.1	SE-1
5	87.2	SE-1
AVERAGE	**87.5**	
STD. DEV.	0.50	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-05
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-73

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.4	SE-1	<10
2	78.0	SE-1	<10
3	81.5	SE-1	<10
4	81.6	SE-1	<10
5	76.9	SE-1	<10
AVERAGE	**79.5**		
STD. DEV.	2.09		
INSIDE TRACK (WELD "B")			
1	84.5	SE-1	<10
2	84.6	SE-1	<10
3	85.4	SE-1	<10
4	85.2	SE-1	<10
5	82.8	SE-1	<10
AVERAGE	**84.5**		
STD. DEV.	1.02		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	87.0	SE-1
2	87.7	SE-1
3	88.7	SE-1
4	89.6	SE-1
5	89.4	SE-1
AVERAGE	**88.5**	
STD. DEV.	1.11	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-06
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-74

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	80.4	SE-1	<10
2	84.7	SE-1	<10
3	82.4	SE-1	<10
4	81.6	SE-1	<10
5	80.3	SE-1	<10
AVERAGE	**81.9**		
STD. DEV.	1.80		
INSIDE TRACK (WELD "B")			
1	83.0	SE-1	<10
2	76.3	SE-1	<10
3	82.0	SE-1	<10
4	79.3	SE-1	<10
5	78.3	SE-1	<10
AVERAGE	**79.8**		
STD. DEV.	2.73		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	89.5	SE-1
2	90.0	SE-1
3	89.7	SE-1
4	89.9	SE-1
5	89.4	SE-1
AVERAGE	**89.7**	
STD. DEV.	0.25	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-07
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-75

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.0	SE-1	<10
2	87.4	SE-1	<10
3	82.9	SE-1	<10
4	85.7	SE-1	<10
5	86.2	SE-1	<10
AVERAGE	**85.4**		
STD. DEV.	1.67		
INSIDE TRACK (WELD "B")			
1	85.4	SE-1	<10
2	86.6	SE-1	<10
3	84.3	SE-1	<10
4	84.7	SE-1	<10
5	84.6	SE-1	<10
AVERAGE	**85.1**		
STD. DEV.	0.92		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	90.7	SE-1
2	91.2	SE-1
3	91.9	SE-1
4	93.3	SE-1
5	94.9	SE-1
AVERAGE	**92.4**	
STD. DEV.	1.71	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-08
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-76

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	81.9	SE-1	<10
2	82.8	SE-1	<10
3	82.6	SE-1	<10
4	83.2	SE-1	<10
5	82.1	SE-1	<10
AVERAGE	**82.5**		
STD. DEV.	0.53		
INSIDE TRACK (WELD "B")			
1	79.9	SE-1	<10
2	81.9	SE-1	<10
3	82.2	SE-1	<10
4	81.4	SE-1	<10
5	81.9	SE-1	<10
AVERAGE	**81.5**		
STD. DEV.	0.92		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	88.8	SE-1
2	88.4	SE-1
3	87.9	SE-1
4	88.4	SE-1
5	88.4	SE-1
AVERAGE	**88.4**	
STD. DEV.	0.32	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-09
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-77

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.8	SE-1	<10
2	85.7	SE-1	<10
3	81.5	SE-1	<10
4	84.5	SE-1	<10
5	81.3	SE-1	<10
AVERAGE	**83.4**		
STD. DEV.	1.92		
INSIDE TRACK (WELD "B")			
1	82.9	SE-1	<10
2	82.7	SE-1	<10
3	82.4	SE-1	<10
4	82.3	SE-1	<10
5	81.7	SE-1	<10
AVERAGE	**82.4**		
STD. DEV.	0.46		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	89.8	SE-1
2	89.2	SE-1
3	90.8	SE-1
4	89.7	SE-1
5	89.7	SE-1
AVERAGE	**89.8**	
STD. DEV.	0.59	

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INTEGRITY IN TESTING

PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-10
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-78

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	80.0	SE-1	<10
2	82.1	SE-1	<10
3	81.3	SE-1	<10
4	82.7	SE-1	<10
5	83.1	SE-1	<10
AVERAGE	**81.8**		
STD. DEV.	1.23		
INSIDE TRACK (WELD "B")			
1	78.1	SE-1	<10
2	82.0	SE-1	<10
3	82.8	SE-1	<10
4	82.8	SE-1	<10
5	82.5	SE-1	<10
AVERAGE	**81.6**		
STD. DEV.	2.01		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	88.5	SE-1
2	88.9	SE-1
3	89.4	SE-1
4	89.3	SE-1
5	87.8	SE-1
AVERAGE	**88.8**	
STD. DEV.	0.65	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW L.F. CLOSURE
PROJECT NO.: 2008-618-07
LAB ID NO.: 2008-618-07-11
MATERIAL: 40-MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-79

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.6	SE-1	<10
2	86.5	SE-1	<10
3	84.9	SE-1	<10
4	82.4	SE-1	<10
5	81.8	SE-1	<10
AVERAGE	**84.2**		
STD. DEV.	2.05		
INSIDE TRACK (WELD "B")			
1	80.8	SE-1	<10
2	82.4	SE-1	<10
3	81.8	SE-1	<10
4	79.3	SE-1	<10
5	81.9	SE-1	<10
AVERAGE	**81.2**		
STD. DEV.	1.23		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	89.2	SE-1
2	89.7	SE-1
3	90.0	SE-1
4	90.2	SE-1
5	90.3	SE-1
AVERAGE	**89.9**	
STD. DEV.	0.44	

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LABORATORY TEST REPORT

October 17, 2008

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-08

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
10/16/08	NA	12	DT-80 to DT-91

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 12 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-80

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.3	SE1	<10
2	82.0	SE1	<10
3	79.9	SE1	<10
4	78.9	SE1	<10
5	79.6	SE1	<10
AVERAGE	**79.9**		
STD. DEV.	1.21		
INSIDE TRACK (WELD "B")			
1	80.3	SE1	<10
2	81.5	SE1	<10
3	82.9	SE1	<10
4	84.1	SE1	<10
5	82.7	SE1	<10
AVERAGE	**82.3**		
STD. DEV.	1.45		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.1	BRK
2	94.4	BRK
3	93.9	BRK
4	96.4	BRK
5	95.5	BRK
AVERAGE	**95.7**	
STD. DEV.	1.67	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-81

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	75.1	SE1	<10
2	79.0	SE1	<10
3	78.9	SE1	<10
4	79.0	SE1	<10
5	79.9	SE1	<10
AVERAGE	**78.4**		
STD. DEV.	1.88		
INSIDE TRACK (WELD "B")			
1	79.1	SE1	<10
2	85.6	SE1	<10
3	80.1	SE1	<10
4	77.0	SE1	<10
5	77.1	SE1	<10
AVERAGE	**79.8**		
STD. DEV.	3.51		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.6	BRK
2	93.8	BRK
3	93.2	BRK
4	97.7	BRK
5	97.8	BRK
AVERAGE	**95.6**	
STD. DEV.	2.14	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-82

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.8	SE1	<10
2	77.7	SE1	<10
3	77.2	SE1	<10
4	81.6	SE1	<10
5	79.5	SE1	<10
AVERAGE	**79.2**		
STD. DEV.	1.76		
INSIDE TRACK (WELD "B")			
1	78.9	SE1	<10
2	74.3	SE1	<10
3	71.4	SE1	<10
4	76.6	SE1	<10
5	75.2	SE1	<10
AVERAGE	**75.3**		
STD. DEV.	2.78		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.6	BRK
2	95.0	BRK
3	94.6	BRK
4	97.8	BRK
5	93.7	BRK
AVERAGE	**95.3**	
STD. DEV.	1.54	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-83

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.7	SE1	<10
2	77.8	SE1	<10
3	78.3	SE1	<10
4	80.1	SE1	<10
5	81.3	SE1	<10
AVERAGE	**79.4**		
STD. DEV.	1.41		
INSIDE TRACK (WELD "B")			
1	85.0	SE1	<10
2	81.5	SE1	<10
3	82.4	SE1	<10
4	79.6	SE1	<10
5	83.2	SE1	<10
AVERAGE	**82.3**		
STD. DEV.	2.00		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.1	BRK
2	98.0	BRK
3	96.6	BRK
4	93.2	BRK
5	96.8	BRK
AVERAGE	**96.1**	
STD. DEV.	1.79	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-84

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.4	SE1	<10
2	81.9	SE1	<10
3	85.0	SE1	<10
4	80.3	SE1	<10
5	80.1	SE1	<10
AVERAGE	**82.1**		
STD. DEV.	2.08		
INSIDE TRACK (WELD "B")			
1	83.6	SE1	<10
2	82.9	SE1	<10
3	78.7	SE1	<10
4	83.9	SE1	<10
5	83.5	SE1	<10
AVERAGE	**82.5**		
STD. DEV.	2.17		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.1	BRK
2	92.1	BRK
3	92.4	BRK
4	97.3	BRK
5	92.9	BRK
AVERAGE	**93.2**	
STD. DEV.	2.41	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-85

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.2	SE1	<10
2	82.9	SE1	<10
3	85.1	SE1	<10
4	81.0	SE1	<10
5	79.7	SE1	<10
AVERAGE	**82.8**		
STD. DEV.	2.44		
INSIDE TRACK (WELD "B")			
1	80.6	SE1	<10
2	79.9	SE1	<10
3	77.9	SE1	<10
4	79.8	SE1	<10
5	81.6	SE1	<10
AVERAGE	**80.0**		
STD. DEV.	1.36		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.9	BRK
2	95.4	BRK
3	96.0	BRK
4	91.1	BRK
5	91.4	BRK
AVERAGE	**94.4**	
STD. DEV.	2.99	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-86

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.5	SE1	<10
2	85.4	SE1	<10
3	84.2	SE1	<10
4	83.1	SE1	<10
5	81.7	SE1	<10
AVERAGE	**83.8**		
STD. DEV.	1.42		
INSIDE TRACK (WELD "B")			
1	82.7	SE1	<10
2	82.2	SE1	<10
3	82.3	SE1	<10
4	84.6	SE1	<10
5	83.1	SE1	<10
AVERAGE	**83.0**		
STD. DEV.	0.97		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.3	BRK
2	95.1	BRK
3	96.4	BRK
4	91.9	BRK
5	96.4	BRK
AVERAGE	**94.6**	
STD. DEV.	1.98	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-87

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.6	SE1	<10
2	85.4	SE1	<10
3	80.5	SE1	<10
4	82.5	SE1	<10
5	83.6	SE1	<10
AVERAGE	**83.3**		
STD. DEV.	1.91		
INSIDE TRACK (WELD "B")			
1	85.8	SE1	<10
2	82.9	SE1	<10
3	81.9	SE1	<10
4	85.2	SE1	<10
5	84.9	SE1	<10
AVERAGE	**84.1**		
STD. DEV.	1.66		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.1	BRK
2	88.4	BRK
3	90.9	BRK
4	93.0	BRK
5	91.1	BRK
AVERAGE	**91.3**	
STD. DEV.	1.92	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-88

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.9	SE1	<10
2	83.9	SE1	<10
3	85.4	SE1	<10
4	84.7	SE1	<10
5	87.4	SE1	<10
AVERAGE	**85.1**		
STD. DEV.	1.45		
INSIDE TRACK (WELD "B")			
1	84.8	SE1	<10
2	81.9	SE1	<10
3	86.2	SE1	<10
4	83.5	SE1	<10
5	80.3	SE1	<10
AVERAGE	**83.3**		
STD. DEV.	2.33		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.0	BRK
2	98.7	BRK
3	99.0	BRK
4	100.2	BRK
5	97.8	BRK
AVERAGE	**98.9**	
STD. DEV.	0.86	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-10
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-89

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.8	SE1	<10
2	89.7	SE1	<10
3	87.4	SE1	<10
4	90.1	SE1	<10
5	88.6	SE1	<10
AVERAGE	**89.1**		
STD. DEV.	1.12		
INSIDE TRACK (WELD "B")			
1	85.7	SE1	<10
2	86.1	SE1	<10
3	87.5	SE1	<10
4	83.9	SE1	<10
5	84.6	SE1	<10
AVERAGE	**85.6**		
STD. DEV.	1.39		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	106.2	BRK
2	99.1	BRK
3	92.6	BRK
4	93.0	BRK
5	93.6	BRK
AVERAGE	**96.9**	
STD. DEV.	5.83	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-12
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-91

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	93.1	SE1	<10
2	82.9	SE1	<10
3	87.5	SE1	<10
4	83.6	SE1	<10
5	83.0	SE1	<10
AVERAGE	**86.0**		
STD. DEV.	4.39		
INSIDE TRACK (WELD "B")			
1	86.8	SE1	<10
2	91.3	SE1	<10
3	84.0	SE1	<10
4	85.2	SE1	<10
5	86.1	SE1	<10
AVERAGE	**86.7**		
STD. DEV.	2.79		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.7	BRK
2	94.0	BRK
3	94.0	BRK
4	93.0	BRK
5	93.5	BRK
AVERAGE	**93.8**	
STD. DEV.	0.63	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-08
LAB ID NO.: 2008-618-08-11
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-90

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	75.7	SE1	<10
2	84.3	SE1	<10
3	80.9	SE1	<10
4	78.6	SE1	<10
5	85.2	SE1	<10
AVERAGE	**80.9**		
STD. DEV.	3.95		
INSIDE TRACK (WELD "B")			
1	75.5	SE1	<10
2	81.9	SE1	<10
3	85.1	SE1	<10
4	81.8	SE1	<10
5	75.8	SE1	<10
AVERAGE	**80.0**		
STD. DEV.	4.21		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	90.8	BRK
2	93.8	BRK
3	95.0	BRK
4	97.3	BRK
5	93.4	BRK
AVERAGE	**94.1**	
STD. DEV.	2.37	

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Geotechnics

..... GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

November 13, 2008

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-09

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
11/12/08	NA	29	DT-92 to DT-120

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 29 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-92

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	94.7	SE1	<10
2	94.6	SE1	<10
3	94.1	SE1	<10
4	93.9	SE1	<10
5	90.1	SE1	<10
AVERAGE	**93.5**		
STD. DEV.	1.92		
INSIDE TRACK (WELD "B")			
1	81.0	SE1	<10
2	80.5	SE1	<10
3	79.9	SE1	<10
4	80.4	SE1	<10
5	80.6	SE1	<10
AVERAGE	**80.5**		
STD. DEV.	0.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.3	BRK
2	101.3	BRK
3	102.5	BRK
4	102.2	BRK
5	97.7	BRK
AVERAGE	**101.2**	
STD. DEV.	2.01	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-93

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	91.3	SE1	<10
2	94.2	SE1	<10
3	91.8	SE1	<10
4	93.7	SE1	<10
5	92.2	SE1	<10
AVERAGE	**92.6**		
STD. DEV.	1.25		
INSIDE TRACK (WELD "B")			
1	93.1	SE1	<10
2	94.2	SE1	<10
3	95.3	SE1	<10
4	92.2	SE1	<10
5	94.5	SE1	<10
AVERAGE	**93.9**		
STD. DEV.	1.22		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	114.5	BRK
2	111.7	BRK
3	114.5	BRK
4	114.2	BRK
5	114.1	BRK
AVERAGE	**113.8**	
STD. DEV.	1.19	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-94

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	94.4	SE1	<10
2	96.0	SE1	<10
3	90.1	SE1	<10
4	96.3	SE1	<10
5	96.3	SE1	<10
AVERAGE	**94.6**		
STD. DEV.	2.65		
INSIDE TRACK (WELD "B")			
1	97.0	SE1	<10
2	95.1	SE1	<10
3	96.3	SE1	<10
4	97.2	SE1	<10
5	96.8	SE1	<10
AVERAGE	**96.5**		
STD. DEV.	0.84		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.9	BRK
2	111.4	BRK
3	109.0	BRK
4	108.7	BRK
5	105.1	BRK
AVERAGE	**108.4**	
STD. DEV.	2.27	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-95

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.1	SE1	<10
2	88.9	SE1	<10
3	89.8	SE1	<10
4	89.5	SE1	<10
5	91.8	SE1	<10
AVERAGE	**89.4**		
STD. DEV.	1.69		
INSIDE TRACK (WELD "B")			
1	93.9	SE1	<10
2	94.8	SE1	<10
3	95.5	SE1	<10
4	97.1	SE1	<10
5	96.1	SE1	<10
AVERAGE	**95.5**		
STD. DEV.	1.22		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	112.5	BRK
2	114.5	BRK
3	112.0	BRK
4	111.0	BRK
5	110.2	BRK
AVERAGE	**112.0**	
STD. DEV.	1.64	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-96

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	96.5	SE1	<10
2	95.9	SE1	<10
3	96.6	SE1	<10
4	95.9	SE1	<10
5	95.5	SE1	<10
AVERAGE	**96.1**		
STD. DEV.	0.46		
INSIDE TRACK (WELD "B")			
1	95.3	SE1	<10
2	95.0	SE1	<10
3	90.3	SE1	<10
4	92.3	SE1	<10
5	90.0	SE1	<10
AVERAGE	**92.6**		
STD. DEV.	2.51		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	113.1	BRK
2	110.4	BRK
3	111.3	BRK
4	107.9	BRK
5	112.7	BRK
AVERAGE	**111.1**	
STD. DEV.	2.08	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-97

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	95.6	SE1	<10
2	91.4	SE1	<10
3	96.1	SE1	<10
4	91.8	SE1	<10
5	92.9	SE1	<10
AVERAGE	**93.6**		
STD. DEV.	2.17		
INSIDE TRACK (WELD "B")			
1	85.8	SE1	<10
2	88.4	SE1	<10
3	88.9	SE1	<10
4	85.4	SE1	<10
5	83.0	SE1	<10
AVERAGE	**86.3**		
STD. DEV.	2.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	104.3	BRK
2	109.2	BRK
3	107.2	BRK
4	102.7	BRK
5	105.4	BRK
AVERAGE	**105.8**	
STD. DEV.	2.53	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-98

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.3	SE1	<10
2	84.5	SE1	<10
3	77.0	SE1	<10
4	80.1	SE1	<10
5	80.5	SE1	<10
AVERAGE	**81.1**		
STD. DEV.	2.94		
INSIDE TRACK (WELD "B")			
1	73.1	SE1	<10
2	80.5	SE1	<10
3	74.7	SE1	<10
4	75.6	SE1	<10
5	73.4	SE1	<10
AVERAGE	**75.5**		
STD. DEV.	2.99		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.1	BRK
2	98.5	BRK
3	96.6	BRK
4	100.0	BRK
5	94.5	BRK
AVERAGE	**97.5**	
STD. DEV.	2.09	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-99

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.6	SE1	<10
2	80.2	SE1	<10
3	76.5	SE1	<10
4	75.5	SE1	<10
5	79.1	SE1	<10
AVERAGE	**80.0**		
STD. DEV.	5.18		
INSIDE TRACK (WELD "B")			
1	89.1	SE1	<10
2	93.5	SE1	<10
3	93.4	SE1	<10
4	90.7	SE1	<10
5	93.2	SE1	<10
AVERAGE	**92.0**		
STD. DEV.	1.98		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.9	BRK
2	99.0	BRK
3	102.0	BRK
4	98.8	BRK
5	105.3	BRK
AVERAGE	**100.2**	
STD. DEV.	3.58	

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-100

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	92.8	SE1	<10
2	89.2	SE1	<10
3	89.7	SE1	<10
4	89.1	SE1	<10
5	86.1	SE1	<10
AVERAGE	**89.4**		
STD. DEV.	2.38		
INSIDE TRACK (WELD "B")			
1	96.2	SE1	<10
2	94.0	SE1	<10
3	91.9	SE1	<10
4	91.0	SE1	<10
5	91.6	SE1	<10
AVERAGE	**92.9**		
STD. DEV.	2.14		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	111.6	BRK
2	108.0	BRK
3	111.4	BRK
4	112.1	BRK
5	105.0	BRK
AVERAGE	**109.6**	
STD. DEV.	3.05	

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-10
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-101

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.1	SE1	<10
2	88.0	SE1	<10
3	89.6	SE1	<10
4	82.8	SE1	<10
5	86.7	SE1	<10
AVERAGE	**86.6**		
STD. DEV.	2.53		
INSIDE TRACK (WELD "B")			
1	92.3	SE1	<10
2	93.8	SE1	<10
3	93.0	SE1	<10
4	93.0	SE1	<10
5	92.8	SE1	<10
AVERAGE	**93.0**		
STD. DEV.	0.54		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	106.8	BRK
2	109.4	BRK
3	106.9	BRK
4	108.8	BRK
5	106.3	BRK
AVERAGE	**107.6**	
STD. DEV.	1.37	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-11
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-102

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.1	SE1	<10
2	87.0	SE1	<10
3	92.8	SE1	<10
4	88.1	SE1	<10
5	86.7	SE1	<10
AVERAGE	**88.7**		
STD. DEV.	2.46		
INSIDE TRACK (WELD "B")			
1	91.2	SE1	<10
2	98.2	SE1	<10
3	92.5	SE1	<10
4	90.2	SE1	<10
5	92.0	SE1	<10
AVERAGE	**92.8**		
STD. DEV.	3.13		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	105.5	BRK
2	103.3	BRK
3	102.1	BRK
4	99.0	BRK
5	102.5	BRK
AVERAGE	**102.5**	
STD. DEV.	2.35	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-12
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-103

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	95.4	SE1	<10
2	106.7	SE1	<10
3	96.8	SE1	<10
4	103.5	SE1	<10
5	93.5	SE1	<10
AVERAGE	**99.2**		
STD. DEV.	5.64		
INSIDE TRACK (WELD "B")			
1	90.8	SE1	<10
2	98.5	SE1	<10
3	89.2	SE1	<10
4	86.0	SE1	<10
5	94.3	SE1	<10
AVERAGE	**91.8**		
STD. DEV.	4.81		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.2	BRK
2	111.8	BRK
3	110.0	BRK
4	106.3	BRK
5	111.0	BRK
AVERAGE	**109.3**	
STD. DEV.	2.40	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-13
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-104

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.6	SE1	<10
2	92.0	SE1	<10
3	92.0	SE1	<10
4	87.3	SE1	<10
5	93.6	SE1	<10
AVERAGE	**91.1**		
STD. DEV.	2.37		
INSIDE TRACK (WELD "B")			
1	88.4	SE1	<10
2	82.3	SE1	<10
3	85.0	SE1	<10
4	88.1	SE1	<10
5	84.0	SE1	<10
AVERAGE	**85.6**		
STD. DEV.	2.64		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	110.2	BRK
2	104.2	BRK
3	100.6	BRK
4	104.4	BRK
5	104.9	BRK
AVERAGE	**104.9**	
STD. DEV.	3.44	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-14
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-105

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.8	SE1	<10
2	85.2	SE1	<10
3	86.9	SE1	<10
4	89.2	SE1	<10
5	86.9	SE1	<10
AVERAGE	**87.2**		
STD. DEV.	1.46		
INSIDE TRACK (WELD "B")			
1	84.3	SE1	<10
2	86.2	SE1	<10
3	84.6	SE1	<10
4	86.2	SE1	<10
5	85.9	SE1	<10
AVERAGE	**85.4**		
STD. DEV.	0.92		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	106.8	BRK
2	105.7	BRK
3	107.6	BRK
4	104.6	BRK
5	108.8	BRK
AVERAGE	**106.7**	
STD. DEV.	1.63	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-15
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-106

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.1	SE1	<10
2	81.9	SE1	<10
3	84.1	SE1	<10
4	83.9	SE1	<10
5	81.2	SE1	<10
AVERAGE	**83.2**		
STD. DEV.	1.63		
INSIDE TRACK (WELD "B")			
1	82.9	SE1	<10
2	84.7	SE1	<10
3	80.7	SE1	<10
4	83.4	SE1	<10
5	82.1	SE1	<10
AVERAGE	**82.8**		
STD. DEV.	1.49		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	103.0	BRK
2	99.3	BRK
3	96.4	BRK
4	98.0	BRK
5	97.0	BRK
AVERAGE	**98.7**	
STD. DEV.	2.62	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-16
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-107

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.4	SE1	<10
2	79.8	SE1	<10
3	81.0	SE1	<10
4	78.2	SE1	<10
5	78.9	SE1	<10
AVERAGE	**80.3**		
STD. DEV.	2.04		
INSIDE TRACK (WELD "B")			
1	93.2	SE1	<10
2	91.3	SE1	<10
3	89.4	SE1	<10
4	92.1	SE1	<10
5	86.6	SE1	<10
AVERAGE	**90.5**		
STD. DEV.	2.59		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.2	BRK
2	100.6	BRK
3	100.6	BRK
4	92.3	BRK
5	98.7	BRK
AVERAGE	**98.7**	
STD. DEV.	3.69	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-17
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-108

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.1	SE1	<10
2	91.7	SE1	<10
3	90.3	SE1	<10
4	94.5	SE1	<10
5	91.2	SE1	<10
AVERAGE	**91.6**		
STD. DEV.	1.77		
INSIDE TRACK (WELD "B")			
1	94.1	SE1	<10
2	92.7	SE1	<10
3	94.2	SE1	<10
4	94.2	SE1	<10
5	91.0	SE1	<10
AVERAGE	**93.2**		
STD. DEV.	1.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.2	BRK
2	108.6	BRK
3	109.9	BRK
4	112.3	BRK
5	106.0	BRK
AVERAGE	**108.8**	
STD. DEV.	2.44	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-18
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-109

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.1	SE1	<10
2	84.5	SE1	<10
3	83.2	SE1	<10
4	83.4	SE1	<10
5	84.2	SE1	<10
AVERAGE	**83.9**		
STD. DEV.	0.55		
INSIDE TRACK (WELD "B")			
1	79.0	SE1	<10
2	80.2	SE1	<10
3	81.7	SE1	<10
4	77.9	SE1	<10
5	78.9	SE1	<10
AVERAGE	**79.5**		
STD. DEV.	1.46		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.7	BRK
2	92.9	BRK
3	93.4	BRK
4	94.4	BRK
5	99.9	BRK
AVERAGE	**96.5**	
STD. DEV.	4.05	

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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-19
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-110

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.9	SE1	<10
2	81.3	SE1	<10
3	86.1	SE1	<10
4	84.3	SE1	<10
5	85.0	SE1	<10
AVERAGE	**84.5**		
STD. DEV.	1.94		
INSIDE TRACK (WELD "B")			
1	82.0	SE1	<10
2	78.6	SE1	<10
3	82.8	SE1	<10
4	83.8	SE1	<10
5	82.9	SE1	<10
AVERAGE	**82.0**		
STD. DEV.	2.02		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.2	BRK
2	96.8	BRK
3	99.3	BRK
4	97.3	BRK
5	96.2	BRK
AVERAGE	**96.8**	
STD. DEV.	1.84	

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Geotechnics
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-20
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-111

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.3	SE1	<10
2	85.8	SE1	<10
3	84.4	SE1	<10
4	83.5	SE1	<10
5	84.1	SE1	<10
AVERAGE	**84.8**		
STD. DEV.	1.18		
INSIDE TRACK (WELD "B")			
1	89.3	SE1	<10
2	87.3	SE1	<10
3	86.9	SE1	<10
4	83.0	SE1	<10
5	87.1	SE1	<10
AVERAGE	**86.7**		
STD. DEV.	2.29		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.7	BRK
2	97.4	BRK
3	96.9	BRK
4	95.2	BRK
5	97.0	BRK
AVERAGE	**97.6**	
STD. DEV.	2.42	

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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-21
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-112

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.2	SE1	<10
2	83.5	SE1	<10
3	78.8	SE1	<10
4	80.4	SE1	<10
5	80.7	SE1	<10
AVERAGE	**80.5**		
STD. DEV.	1.85		
INSIDE TRACK (WELD "B")			
1	87.5	SE1	<10
2	88.9	SE1	<10
3	86.0	SE1	<10
4	84.5	SE1	<10
5	87.1	SE1	<10
AVERAGE	**86.8**		
STD. DEV.	1.65		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.3	BRK
2	97.8	BRK
3	98.5	BRK
4	98.0	BRK
5	99.1	BRK
AVERAGE	**98.5**	
STD. DEV.	0.66	

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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-22
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-113

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.5	SE1	<10
2	79.3	SE1	<10
3	77.9	SE1	<10
4	80.1	SE1	<10
5	75.1	SE1	<10
AVERAGE	**78.4**		
STD. DEV.	2.00		
INSIDE TRACK (WELD "B")			
1	91.3	SE1	<10
2	84.8	SE1	<10
3	82.6	SE1	<10
4	83.9	SE1	<10
5	86.3	SE1	<10
AVERAGE	**85.8**		
STD. DEV.	3.37		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.2	BRK
2	101.6	BRK
3	103.6	BRK
4	103.5	BRK
5	103.3	BRK
AVERAGE	**101.2**	
STD. DEV.	4.02	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-23
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-114

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.1	SE1	<10
2	81.3	SE1	<10
3	80.4	SE1	<10
4	80.6	SE1	<10
5	81.4	SE1	<10
AVERAGE	**82.0**		
STD. DEV.	2.35		
INSIDE TRACK (WELD "B")			
1	85.3	SE1	<10
2	83.9	SE1	<10
3	85.5	SE1	<10
4	84.7	SE1	<10
5	84.2	SE1	<10
AVERAGE	**84.7**		
STD. DEV.	0.69		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	100.9	BRK
2	102.7	BRK
3	104.4	BRK
4	105.1	BRK
5	99.2	BRK
AVERAGE	**102.5**	
STD. DEV.	2.44	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-24
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-115

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.1	SE1	<10
2	81.6	SE1	<10
3	74.8	SE1	<10
4	78.1	SE1	<10
5	76.9	SE1	<10
AVERAGE	**78.1**		
STD. DEV.	2.53		
INSIDE TRACK (WELD "B")			
1	88.7	SE1	<10
2	90.8	SE1	<10
3	87.8	SE1	<10
4	90.2	SE1	<10
5	88.4	SE1	<10
AVERAGE	**89.2**		
STD. DEV.	1.27		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	100.0	BRK
2	98.7	BRK
3	103.0	BRK
4	99.8	BRK
5	97.7	BRK
AVERAGE	**99.8**	
STD. DEV.	1.99	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-25
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-116

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.9	SE1	<10
2	90.7	SE1	<10
3	90.0	SE1	<10
4	87.8	SE1	<10
5	91.0	SE1	<10
AVERAGE	**89.7**		
STD. DEV.	1.33		
INSIDE TRACK (WELD "B")			
1	92.7	SE1	<10
2	94.5	SE1	<10
3	90.7	SE1	<10
4	93.2	SE1	<10
5	89.7	SE1	<10
AVERAGE	**92.2**		
STD. DEV.	1.94		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.0	BRK
2	106.1	BRK
3	106.5	BRK
4	107.1	BRK
5	105.9	BRK
AVERAGE	**106.5**	
STD. DEV.	0.53	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-26
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-117

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	94.0	SE1	<10
2	99.8	SE1	<10
3	91.3	SE1	<10
4	89.8	SE1	<10
5	84.1	SE1	<10
AVERAGE	**91.8**		
STD. DEV.	5.75		
INSIDE TRACK (WELD "B")			
1	80.1	SE1	<10
2	81.9	SE1	<10
3	83.8	SE1	<10
4	79.7	SE1	<10
5	81.3	SE1	<10
AVERAGE	**81.4**		
STD. DEV.	1.63		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.2	BRK
2	98.3	BRK
3	100.2	BRK
4	99.7	BRK
5	98.6	BRK
AVERAGE	**99.0**	
STD. DEV.	0.90	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-27
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-118

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.4	SE1	<10
2	78.6	SE1	<10
3	88.3	SE1	<10
4	79.8	SE1	<10
5	82.9	SE1	<10
AVERAGE	**83.0**		
STD. DEV.	3.98		
INSIDE TRACK (WELD "B")			
1	84.8	SE1	<10
2	86.9	SE1	<10
3	80.3	SE1	<10
4	84.1	SE1	<10
5	79.7	SE1	<10
AVERAGE	**83.2**		
STD. DEV.	3.07		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.8	BRK
2	100.7	BRK
3	98.4	BRK
4	95.8	BRK
5	95.7	BRK
AVERAGE	**96.5**	
STD. DEV.	3.33	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-28
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-119

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.1	SE1	<10
2	83.5	SE1	<10
3	83.0	SE1	<10
4	85.1	SE1	<10
5	82.9	SE1	<10
AVERAGE	**83.7**		
STD. DEV.	0.91		
INSIDE TRACK (WELD "B")			
1	82.2	SE1	<10
2	85.4	SE1	<10
3	87.0	SE1	<10
4	77.9	SE1	<10
5	83.8	SE1	<10
AVERAGE	**83.3**		
STD. DEV.	3.49		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	100.1	BRK
2	98.6	BRK
3	101.0	BRK
4	96.6	BRK
5	102.0	BRK
AVERAGE	**99.7**	
STD. DEV.	2.12	

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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-09
LAB ID NO.: 2008-618-09-29
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-120

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	81.9	SE1	<10
2	88.1	SE1	<10
3	83.7	SE1	<10
4	81.9	SE1	<10
5	86.8	SE1	<10
AVERAGE	**84.5**		
STD. DEV.	2.85		
INSIDE TRACK (WELD "B")			
1	87.3	SE1	<10
2	79.6	SE1	<10
3	89.0	SE1	<10
4	88.3	SE1	<10
5	92.2	SE1	<10
AVERAGE	**87.3**		
STD. DEV.	4.67		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.7	BRK
2	99.1	BRK
3	95.8	BRK
4	98.7	BRK
5	100.3	BRK
AVERAGE	**98.3**	
STD. DEV.	1.69	

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LABORATORY TEST REPORT

November 24, 2008

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2008-618-10

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
11/21/08	NA	18	DT-121 to DT-138

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 18 Data Pages

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-121

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.4	SE1	<10
2	83.4	SE1	<10
3	81.1	SE1	<10
4	81.2	SE1	<10
5	81.1	SE1	<10
AVERAGE	**81.8**		
STD. DEV.	1.03		
INSIDE TRACK (WELD "B")			
1	83.4	SE1	<10
2	82.1	SE1	<10
3	82.2	SE1	<10
4	82.8	SE1	<10
5	86.4	SE1	<10
AVERAGE	**83.4**		
STD. DEV.	1.77		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.3	BRK
2	101.7	BRK
3	105.2	BRK
4	103.2	BRK
5	101.4	BRK
AVERAGE	**101.8**	
STD. DEV.	2.91	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-122

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.3	SE1	<10
2	89.9	SE1	<10
3	85.0	SE1	<10
4	88.9	SE1	<10
5	87.9	SE1	<10
AVERAGE	**87.8**		
STD. DEV.	1.85		
INSIDE TRACK (WELD "B")			
1	85.5	SE1	<10
2	86.8	SE1	<10
3	82.5	SE1	<10
4	86.3	SE1	<10
5	84.7	SE1	<10
AVERAGE	**85.2**		
STD. DEV.	1.69		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	105.7	BRK
2	106.8	BRK
3	108.8	BRK
4	103.8	BRK
5	105.3	BRK
AVERAGE	**106.1**	
STD. DEV.	1.86	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-123

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	94.1	SE1	<10
2	95.0	SE1	<10
3	92.1	SE1	<10
4	93.4	SE1	<10
5	94.2	SE1	<10
AVERAGE	**93.8**		
STD. DEV.	1.09		
INSIDE TRACK (WELD "B")			
1	96.1	SE1	<10
2	89.9	SE1	<10
3	97.0	SE1	<10
4	90.2	SE1	<10
5	93.9	SE1	<10
AVERAGE	**93.4**		
STD. DEV.	3.28		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.4	BRK
2	107.3	BRK
3	101.3	BRK
4	103.7	BRK
5	105.6	BRK
AVERAGE	**103.9**	
STD. DEV.	2.62	

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PEEL AND SHEAR TEST RESULTS
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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-124

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.4	SE1	<10
2	91.5	SE1	<10
3	92.8	SE1	<10
4	87.0	SE1	<10
5	88.3	SE1	<10
AVERAGE	**89.0**		
STD. DEV.	3.09		
INSIDE TRACK (WELD "B")			
1	88.3	SE1	<10
2	87.6	SE1	<10
3	91.1	SE1	<10
4	88.9	SE1	<10
5	90.0	SE1	<10
AVERAGE	**89.2**		
STD. DEV.	1.39		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	105.0	BRK
2	109.8	BRK
3	104.2	BRK
4	107.9	BRK
5	104.6	BRK
AVERAGE	**106.3**	
STD. DEV.	2.44	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-125

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	98.5	SE1	<10
2	96.5	SE1	<10
3	95.4	SE1	<10
4	96.3	SE1	<10
5	96.9	SE1	<10
AVERAGE	**96.7**		
STD. DEV.	1.14		
INSIDE TRACK (WELD "B")			
1	97.0	SE1	<10
2	94.6	SE1	<10
3	94.8	SE1	<10
4	94.9	SE1	<10
5	93.6	SE1	<10
AVERAGE	**95.0**		
STD. DEV.	1.24		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	110.9	BRK
2	113.6	BRK
3	112.7	BRK
4	111.0	BRK
5	113.1	BRK
AVERAGE	**112.3**	
STD. DEV.	1.24	

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PEEL AND SHEAR TEST RESULTS
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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-126

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	88.9	SE1	<10
2	89.2	SE1	<10
3	92.6	SE1	<10
4	91.1	SE1	<10
5	90.6	SE1	<10
AVERAGE	**90.5**		
STD. DEV.	1.50		
INSIDE TRACK (WELD "B")			
1	91.4	SE1	<10
2	89.6	SE1	<10
3	94.3	SE1	<10
4	90.4	SE1	<10
5	94.9	SE1	<10
AVERAGE	**92.1**		
STD. DEV.	2.36		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	113.1	BRK
2	112.1	BRK
3	110.7	BRK
4	110.5	BRK
5	112.1	BRK
AVERAGE	**111.7**	
STD. DEV.	1.09	

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PEEL AND SHEAR TEST RESULTS
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Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-127

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	91.0	SE1	<10
2	90.4	SE1	<10
3	88.1	SE1	<10
4	87.3	SE1	<10
5	86.6	SE1	<10
AVERAGE	**88.7**		
STD. DEV.	1.93		
INSIDE TRACK (WELD "B")			
1	93.3	SE1	<10
2	89.4	SE1	<10
3	90.3	SE1	<10
4	90.4	SE1	<10
5	92.9	SE1	<10
AVERAGE	**91.3**		
STD. DEV.	1.73		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.8	BRK
2	107.6	BRK
3	11.0	BRK
4	108.9	BRK
5	106.5	BRK
AVERAGE	**88.4**	
STD. DEV.	43.25	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-128

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.9	SE1	<10
2	90.5	SE1	<10
3	95.0	SE1	<10
4	94.9	SE1	<10
5	91.4	SE1	<10
AVERAGE	**92.5**		
STD. DEV.	2.22		
INSIDE TRACK (WELD "B")			
1	87.0	SE1	<10
2	79.6	SE1	<10
3	89.1	SE1	<10
4	85.8	SE1	<10
5	88.5	SE1	<10
AVERAGE	**86.0**		
STD. DEV.	3.80		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	106.6	BRK
2	111.6	BRK
3	108.4	BRK
4	111.7	BRK
5	106.7	BRK
AVERAGE	**109.0**	
STD. DEV.	2.52	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-129

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.9	SE1	<10
2	88.9	SE1	<10
3	89.2	SE1	<10
4	91.9	SE1	<10
5	87.5	SE1	<10
AVERAGE	**89.7**		
STD. DEV.	1.73		
INSIDE TRACK (WELD "B")			
1	95.0	SE1	<10
2	92.9	SE1	<10
3	91.9	SE1	<10
4	93.1	SE1	<10
5	93.3	SE1	<10
AVERAGE	**93.2**		
STD. DEV.	1.12		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	110.3	BRK
2	109.0	BRK
3	108.4	BRK
4	105.8	BRK
5	109.0	BRK
AVERAGE	**108.5**	
STD. DEV.	1.66	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-10
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-130

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.5	SE1	<10
2	85.5	SE1	<10
3	84.7	SE1	<10
4	84.8	SE1	<10
5	83.2	SE1	<10
AVERAGE	**84.5**		
STD. DEV.	0.84		
INSIDE TRACK (WELD "B")			
1	86.6	SE1	<10
2	83.7	SE1	<10
3	84.7	SE1	<10
4	84.5	SE1	<10
5	83.4	SE1	<10
AVERAGE	**84.6**		
STD. DEV.	1.25		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.3	BRK
2	95.2	BRK
3	95.8	BRK
4	93.1	BRK
5	95.7	BRK
AVERAGE	**94.6**	
STD. DEV.	1.32	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-11
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-131

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	96.1	SE1	<10
2	86.9	SE1	<10
3	88.3	SE1	<10
4	93.4	SE1	<10
5	93.8	SE1	<10
AVERAGE	**91.7**		
STD. DEV.	3.91		
INSIDE TRACK (WELD "B")			
1	87.4	SE1	<10
2	88.8	SE1	<10
3	87.6	SE1	<10
4	90.2	SE1	<10
5	88.8	SE1	<10
AVERAGE	**88.6**		
STD. DEV.	1.13		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	105.3	BRK
2	107.0	BRK
3	108.4	BRK
4	107.7	BRK
5	108.0	BRK
AVERAGE	**107.3**	
STD. DEV.	1.22	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-12
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-132

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.9	SE1	<10
2	84.2	SE1	<10
3	85.8	SE1	<10
4	86.9	SE1	<10
5	83.0	SE1	<10
AVERAGE	**85.4**		
STD. DEV.	1.72		
INSIDE TRACK (WELD "B")			
1	80.2	SE1	<10
2	77.0	SE1	<10
3	82.9	SE1	<10
4	87.0	SE1	<10
5	81.9	SE1	<10
AVERAGE	**81.8**		
STD. DEV.	3.67		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	86.8	BRK
2	98.7	BRK
3	98.6	BRK
4	98.8	BRK
5	95.5	BRK
AVERAGE	**95.7**	
STD. DEV.	5.15	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-13
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-133

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	101.4	SE1	<10
2	90.3	SE1	<10
3	100.7	SE1	<10
4	93.0	SE1	<10
5	96.3	SE1	<10
AVERAGE	**96.3**		
STD. DEV.	4.80		
INSIDE TRACK (WELD "B")			
1	97.2	SE1	<10
2	94.3	SE1	<10
3	93.9	SE1	<10
4	97.9	SE1	<10
5	95.3	SE1	<10
AVERAGE	**95.7**		
STD. DEV.	1.76		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	110.9	BRK
2	114.2	BRK
3	115.4	BRK
4	116.0	BRK
5	115.0	BRK
AVERAGE	**114.3**	
STD. DEV.	2.01	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-14
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-134

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	96.2	SE1	<10
2	94.2	SE1	<10
3	92.9	SE1	<10
4	96.2	SE1	<10
5	95.1	SE1	<10
AVERAGE	**94.9**		
STD. DEV.	1.41		
INSIDE TRACK (WELD "B")			
1	97.1	SE1	<10
2	95.4	SE1	<10
3	97.1	SE1	<10
4	95.7	SE1	<10
5	94.7	SE1	<10
AVERAGE	**96.0**		
STD. DEV.	1.07		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	111.9	BRK
2	108.5	BRK
3	108.0	BRK
4	112.6	BRK
5	113.0	BRK
AVERAGE	**110.8**	
STD. DEV.	2.37	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-15
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-135

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.9	SE1	<10
2	85.2	SE1	<10
3	84.0	SE1	<10
4	80.5	SE1	<10
5	91.5	SE1	<10
AVERAGE	**85.2**		
STD. DEV.	3.98		
INSIDE TRACK (WELD "B")			
1	86.7	SE1	<10
2	83.7	SE1	<10
3	84.4	SE1	<10
4	86.0	SE1	<10
5	87.6	SE1	<10
AVERAGE	**85.7**		
STD. DEV.	1.61		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	90.4	BRK
2	103.5	BRK
3	101.4	BRK
4	102.6	BRK
5	102.3	BRK
AVERAGE	**100.0**	
STD. DEV.	5.44	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-16
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-136

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.6	SE1	<10
2	93.4	SE1	<10
3	90.7	SE1	<10
4	86.1	SE1	<10
5	87.6	SE1	<10
AVERAGE	**89.5**		
STD. DEV.	2.82		
INSIDE TRACK (WELD "B")			
1	85.3	SE1	<10
2	91.7	SE1	<10
3	85.0	SE1	<10
4	83.0	SE1	<10
5	83.6	SE1	<10
AVERAGE	**85.7**		
STD. DEV.	3.48		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.1	BRK
2	99.2	BRK
3	104.8	BRK
4	98.4	BRK
5	98.5	BRK
AVERAGE	**100.0**	
STD. DEV.	2.71	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-17
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-137

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	81.7	SE1	<10
2	84.3	SE1	<10
3	77.8	SE1	<10
4	96.5	SE1	<10
5	82.8	SE1	<10
AVERAGE	**84.6**		
STD. DEV.	7.06		
INSIDE TRACK (WELD "B")			
1	90.2	SE1	<10
2	86.2	SE1	<10
3	87.3	SE1	<10
4	85.5	SE1	<10
5	88.8	SE1	<10
AVERAGE	**87.6**		
STD. DEV.	1.91		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	100.7	BRK
2	92.8	BRK
3	92.4	BRK
4	95.5	BRK
5	97.0	BRK
AVERAGE	**95.7**	
STD. DEV.	3.39	

CHECKED BY: GCM DATE: 11-24-08

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2008-618-10
LAB ID NO.: 2008-618-10-18
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-138

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	97.0	SE1	<10
2	90.6	SE1	<10
3	92.9	SE1	<10
4	92.7	SE1	<10
5	91.6	SE1	<10
AVERAGE	**93.0**		
STD. DEV.	2.44		
INSIDE TRACK (WELD "B")			
1	89.0	SE1	<10
2	91.9	SE1	<10
3	93.0	SE1	<10
4	89.8	SE1	<10
5	92.2	SE1	<10
AVERAGE	**91.2**		
STD. DEV.	1.70		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	111.1	BRK
2	112.3	BRK
3	102.7	BRK
4	106.1	BRK
5	106.8	BRK
AVERAGE	**107.8**	
STD. DEV.	3.91	

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Geotechnics
INTEGRITY IN TESTING

LABORATORY TEST REPORT

February 2, 2009

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2009-617-01

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
2/2/09	NA	9	DT-139 to DT-147

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P Smith by BM

Michael P. Smith
Regional Manager

attachments: 9 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-139

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	76.6	SE1	<10
2	77.8	SE1	<10
3	80.9	SE1	<10
4	78.3	SE1	<10
5	82.1	SE1	<10
AVERAGE	**79.1**		
STD. DEV.	2.28		
INSIDE TRACK (WELD "B")			
1	75.1	SE1	<10
2	78.9	SE1	<10
3	77.6	SE1	<10
4	78.9	SE1	<10
5	79.1	SE1	<10
AVERAGE	**77.9**		
STD. DEV.	1.69		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	84.1	BRK
2	87.0	BRK
3	90.1	BRK
4	85.6	BRK
5	88.6	BRK
AVERAGE	**87.1**	
STD. DEV.	2.37	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-140

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.6	SE1	<10
2	90.6	SE1	<10
3	91.8	SE1	<10
4	86.6	SE1	<10
5	91.7	SE1	<10
AVERAGE	**90.1**		
STD. DEV.	2.13		
INSIDE TRACK (WELD "B")			
1	87.0	SE1	<10
2	96.3	SE1	<10
3	94.3	SE1	<10
4	89.1	SE1	<10
5	90.5	SE1	<10
AVERAGE	**91.4**		
STD. DEV.	3.80		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	89.2	BRK
2	95.5	BRK
3	93.6	BRK
4	95.5	BRK
5	91.2	BRK
AVERAGE	**93.0**	
STD. DEV.	2.76	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-141

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	83.8	SE1	<10
2	82.3	SE1	<10
3	80.2	SE1	<10
4	83.3	SE1	<10
5	78.8	SE1	<10
AVERAGE	**81.7**		
STD. DEV.	2.12		
INSIDE TRACK (WELD "B")			
1	88.4	SE1	<10
2	86.3	SE1	<10
3	89.3	SE1	<10
4	89.4	SE1	<10
5	88.5	SE1	<10
AVERAGE	**88.4**		
STD. DEV.	1.25		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.6	BRK
2	92.6	BRK
3	92.4	BRK
4	92.2	BRK
5	93.0	BRK
AVERAGE	**93.6**	
STD. DEV.	2.28	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-142

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	81.6	SE1	<10
2	82.7	SE1	<10
3	83.0	SE1	<10
4	82.0	SE1	<10
5	79.7	SE1	<10
AVERAGE	**81.8**		
STD. DEV.	1.30		
INSIDE TRACK (WELD "B")			
1	81.8	SE1	<10
2	82.1	SE1	<10
3	79.3	SE1	<10
4	77.7	SE1	<10
5	81.6	SE1	<10
AVERAGE	**80.5**		
STD. DEV.	1.92		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.0	BRK
2	91.5	BRK
3	97.7	BRK
4	94.8	BRK
5	91.2	BRK
AVERAGE	**93.8**	
STD. DEV.	2.66	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING

ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-143

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.6	SE1	<10
2	87.3	SE1	<10
3	88.2	SE1	<10
4	90.1	SE1	<10
5	90.2	SE1	<10
AVERAGE	**88.1**		
STD. DEV.	2.31		
INSIDE TRACK (WELD "B")			
1	86.6	SE1	<10
2	82.5	SE1	<10
3	92.2	SE1	<10
4	89.7	SE1	<10
5	80.9	SE1	<10
AVERAGE	**86.4**		
STD. DEV.	4.74		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.6	BRK
2	101.2	BRK
3	101.4	BRK
4	97.8	BRK
5	102.1	BRK
AVERAGE	**101.0**	
STD. DEV.	1.88	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-144

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.6	SE1	<10
2	81.1	SE1	<10
3	82.5	SE1	<10
4	83.2	SE1	<10
5	80.9	SE1	<10
AVERAGE	**82.1**		
STD. DEV.	1.01		
INSIDE TRACK (WELD "B")			
1	79.8	SE1	<10
2	76.4	SE1	<10
3	73.5	SE1	<10
4	81.6	SE1	<10
5	71.3	SE1	<10
AVERAGE	**76.5**		
STD. DEV.	4.27		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	88.7	BRK
2	93.8	BRK
3	91.2	BRK
4	92.5	BRK
5	88.3	BRK
AVERAGE	**90.9**	
STD. DEV.	2.38	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-145

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.3	SE1	<10
2	87.2	SE1	<10
3	83.9	SE1	<10
4	82.4	SE1	<10
5	84.9	SE1	<10
AVERAGE	**84.7**		
STD. DEV.	1.77		
INSIDE TRACK (WELD "B")			
1	80.7	SE1	<10
2	85.3	SE1	<10
3	80.0	SE1	<10
4	79.7	SE1	<10
5	79.2	SE1	<10
AVERAGE	**81.0**		
STD. DEV.	2.48		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.3	BRK
2	96.2	BRK
3	95.8	BRK
4	91.5	BRK
5	90.5	BRK
AVERAGE	**93.7**	
STD. DEV.	2.55	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-146

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.7	SE1	<10
2	84.9	SE1	<10
3	81.1	SE1	<10
4	81.0	SE1	<10
5	85.1	SE1	<10
AVERAGE	**83.0**		
STD. DEV.	1.98		
INSIDE TRACK (WELD "B")			
1	81.6	SE1	<10
2	79.2	SE1	<10
3	78.1	SE1	<10
4	80.6	SE1	<10
5	75.4	SE1	<10
AVERAGE	**79.0**		
STD. DEV.	2.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	94.7	BRK
2	94.8	BRK
3	95.5	BRK
4	94.5	BRK
5	94.1	BRK
AVERAGE	**94.7**	
STD. DEV.	0.51	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-01
LAB ID NO.: 2009-617-01-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-147

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	77.4	SE1	<10
2	79.2	SE1	<10
3	77.4	SE1	<10
4	78.5	SE1	<10
5	76.9	SE1	<10
AVERAGE	**77.9**		
STD. DEV.	0.94		
INSIDE TRACK (WELD "B")			
1	84.2	SE1	<10
2	85.7	SE1	<10
3	84.1	SE1	<10
4	83.9	SE1	<10
5	82.8	SE1	<10
AVERAGE	**84.1**		
STD. DEV.	1.04		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	91.3	BRK
2	93.5	BRK
3	97.0	BRK
4	96.4	BRK
5	95.9	BRK
AVERAGE	**94.8**	
STD. DEV.	2.37	

CHECKED BY: GEM DATE: 2-3-09

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Geotechnics
INTEGRITY IN TESTING

LABORATORY TEST REPORT

February 9, 2009

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2009-617-02

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
2/5/09	NA	5	DT-148 to DT-152

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 5 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-02
LAB ID NO.: 2009-617-02-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-148

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	101.5	SE1	<10
2	90.4	SE1	<10
3	89.3	SE1	<10
4	91.4	SE1	<10
5	86.5	SE1	<10
AVERAGE	**91.8**		
STD. DEV.	5.71		
INSIDE TRACK (WELD "B")			
1	90.6	SE1	<10
2	87.8	SE1	<10
3	88.5	SE1	<10
4	85.0	SE1	<10
5	78.9	SE1	<10
AVERAGE	**86.2**		
STD. DEV.	4.53		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	96.6	BRK
2	103.0	BRK
3	98.1	BRK
4	99.8	BRK
5	100.6	BRK
AVERAGE	**99.6**	
STD. DEV.	2.44	

CHECKED BY: GBM DATE: 2-9-09

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-02
LAB ID NO.: 2009-617-02-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-149

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	93.9	SE1	<10
2	93.5	SE1	<10
3	92.7	SE1	<10
4	92.8	SE1	<10
5	91.6	SE1	<10
AVERAGE	**92.9**		
STD. DEV.	0.88		
INSIDE TRACK (WELD "B")			
1	84.5	SE1	<10
2	87.4	SE1	<10
3	87.3	SE1	<10
4	88.8	SE1	<10
5	87.4	SE1	<10
AVERAGE	**87.1**		
STD. DEV.	1.57		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.1	BRK
2	102.6	BRK
3	101.6	BRK
4	101.0	BRK
5	112.4	BRK
AVERAGE	**103.9**	
STD. DEV.	4.77	

CHECKED BY: Gem DATE: 2-9-09

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-02
LAB ID NO.: 2009-617-02-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-150

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	86.1	SE1	<10
2	85.0	SE1	<10
3	85.2	SE1	<10
4	84.4	SE1	<10
5	84.7	SE1	<10
AVERAGE	**85.1**		
STD. DEV.	0.65		
INSIDE TRACK (WELD "B")			
1	85.9	SE1	<10
2	82.6	SE1	<10
3	87.1	SE1	<10
4	86.0	SE1	<10
5	78.8	SE1	<10
AVERAGE	**84.1**		
STD. DEV.	3.40		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	93.2	BRK
2	91.5	BRK
3	91.3	BRK
4	87.7	BRK
5	89.5	BRK
AVERAGE	**90.6**	
STD. DEV.	2.10	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-02
LAB ID NO.: 2009-617-02-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-151

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.2	SE1	<10
2	80.6	SE1	<10
3	79.8	SE1	<10
4	89.7	SE1	<10
5	82.2	SE1	<10
AVERAGE	**83.9**		
STD. DEV.	4.33		
INSIDE TRACK (WELD "B")			
1	78.3	SE1	<10
2	88.1	SE1	<10
3	80.2	SE1	<10
4	79.4	SE1	<10
5	78.9	SE1	<10
AVERAGE	**81.0**		
STD. DEV.	4.04		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	101.3	BRK
2	97.6	BRK
3	92.4	BRK
4	90.7	BRK
5	99.1	BRK
AVERAGE	**96.2**	
STD. DEV.	4.50	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-02
LAB ID NO.: 2009-617-02-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-152

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	90.0	SE1	<10
2	90.7	SE1	<10
3	90.1	SE1	<10
4	89.6	SE1	<10
5	88.9	SE1	<10
AVERAGE	**89.9**		
STD. DEV.	0.67		
INSIDE TRACK (WELD "B")			
1	89.5	SE1	<10
2	90.3	SE1	<10
3	89.3	SE1	<10
4	90.0	SE1	<10
5	88.8	SE1	<10
AVERAGE	**89.6**		
STD. DEV.	0.59		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.2	BRK
2	98.0	BRK
3	98.4	BRK
4	98.1	BRK
5	97.9	BRK
AVERAGE	**98.3**	
STD. DEV.	0.53	

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LABORATORY TEST REPORT

February 17, 2009

Mr. Kennedy Garber
Hallaton, Inc.

RE: DESTRUCTIVE SEAM TEST RESULTS
North Wake Co. MSW Landfill Closure
PROJECT NO. 2009-617-03

Transmitted herein are the results of the destructive seam tests performed for Hallaton, Inc. on the samples submitted as follows:

Date Submitted	Project No.	No. Samples	Sample I.D.
2/16/09	NA	18	DT-153 to DT-170

We are pleased to be of service and trust that our efforts have contributed to the success of your project.

Respectfully submitted,

Michael P. Smith
Regional Manager

attachments: 18 Data Pages

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-153

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	80.8	SE1	<10
2	81.4	SE1	<10
3	78.7	SE1	<10
4	81.1	SE1	<10
5	81.1	SE1	<10
AVERAGE	**80.6**		
STD. DEV.	1.09		
INSIDE TRACK (WELD "B")			
1	79.1	SE1	<10
2	81.2	SE1	<10
3	76.9	SE1	<10
4	80.2	SE1	<10
5	75.4	SE1	<10
AVERAGE	**78.6**		
STD. DEV.	2.38		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	95.5	BRK
2	93.6	BRK
3	88.0	BRK
4	92.4	BRK
5	92.3	BRK
AVERAGE	**92.4**	
STD. DEV.	2.76	

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-154

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.6	SE1	<10
2	88.8	SE1	<10
3	86.8	SE1	<10
4	84.4	SE1	<10
5	89.9	SE1	<10
AVERAGE	**87.1**		
STD. DEV.	2.26		
INSIDE TRACK (WELD "B")			
1	84.7	SE1	<10
2	83.0	SE1	<10
3	84.4	SE1	<10
4	82.2	SE1	<10
5	90.4	SE1	<10
AVERAGE	**84.9**		
STD. DEV.	3.22		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	97.5	BRK
2	103.5	BRK
3	101.9	BRK
4	102.6	BRK
5	97.6	BRK
AVERAGE	**100.6**	
STD. DEV.	2.86	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-155

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	84.5	SE1	<10
2	82.0	SE1	<10
3	88.5	SE1	<10
4	86.0	SE1	<10
5	89.3	SE1	<10
AVERAGE	**86.1**		
STD. DEV.	2.97		
INSIDE TRACK (WELD "B")			
1	87.7	SE1	<10
2	89.5	SE1	<10
3	90.6	SE1	<10
4	94.0	SE1	<10
5	91.0	SE1	<10
AVERAGE	**90.6**		
STD. DEV.	2.31		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	106.3	BRK
2	108.9	BRK
3	106.7	BRK
4	107.4	BRK
5	107.1	BRK
AVERAGE	**107.3**	
STD. DEV.	1.00	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-04
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-156

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	97.7	SE1	<10
2	97.5	SE1	<10
3	100.5	SE1	<10
4	98.2	SE1	<10
5	102.0	SE1	<10
AVERAGE	**99.2**		
STD. DEV.	1.98		
INSIDE TRACK (WELD "B")			
1	86.3	AD-BRK	50%
2	96.9	AD-BRK	50%
3	101.8	SE1	<10
4	102.4	SE1	<10
5	101.2	SE1	<10
AVERAGE	**97.7**		
STD. DEV.	6.74		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	109.0	BRK
2	106.7	BRK
3	114.2	BRK
4	115.6	BRK
5	116.0	BRK
AVERAGE	**112.3**	
STD. DEV.	4.20	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-05
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-157

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	87.0	SE1	<10
2	84.9	SE1	<10
3	88.6	SE1	<10
4	85.7	SE1	<10
5	88.5	SE1	<10
AVERAGE	**86.9**		
STD. DEV.	1.65		
INSIDE TRACK (WELD "B")			
1	85.2	SE1	<10
2	94.0	SE1	<10
3	90.1	SE1	<10
4	87.3	SE1	<10
5	85.3	SE1	<10
AVERAGE	**88.4**		
STD. DEV.	3.72		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.4	BRK
2	110.1	BRK
3	104.8	BRK
4	102.2	BRK
5	111.4	BRK
AVERAGE	**107.2**	
STD. DEV.	3.77	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-06
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-158

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	99.9	SE1	<10
2	99.9	SE1	<10
3	107.4	SE1	<10
4	98.6	SE1	<10
5	88.2	SE1	<10
AVERAGE	**98.8**		
STD. DEV.	6.87		
INSIDE TRACK (WELD "B")			
1	104.6	SE1	<10
2	101.2	SE1	<10
3	105.2	SE1	<10
4	100.9	SE1	<10
5	91.0	SE1	<10
AVERAGE	**100.6**		
STD. DEV.	5.70		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	117.6	BRK
2	116.0	BRK
3	122.6	BRK
4	121.9	BRK
5	119.0	BRK
AVERAGE	**119.4**	
STD. DEV.	2.80	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-07
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-159

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	96.9	SE1	<10
2	102.6	SE1	<10
3	101.3	SE1	<10
4	97.7	SE1	<10
5	100.1	SE1	<10
AVERAGE	**99.7**		
STD. DEV.	2.40		
INSIDE TRACK (WELD "B")			
1	96.3	SE1	<10
2	97.2	SE1	<10
3	95.8	SE1	<10
4	97.4	SE1	<10
5	97.0	SE1	<10
AVERAGE	**96.7**		
STD. DEV.	0.67		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	109.5	BRK
2	109.0	BRK
3	109.8	BRK
4	110.3	BRK
5	112.7	BRK
AVERAGE	**110.3**	
STD. DEV.	1.44	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-08
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-160

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	100.4	SE1	<10
2	94.3	SE1	<10
3	101.7	SE1	<10
4	91.6	SE1	<10
5	100.2	SE1	<10
AVERAGE	**97.6**		
STD. DEV.	4.42		
INSIDE TRACK (WELD "B")			
1	102.3	SE1	<10
2	102.6	SE1	<10
3	101.8	SE1	<10
4	100.4	SE1	<10
5	102.8	SE1	<10
AVERAGE	**102.0**		
STD. DEV.	0.96		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	109.8	BRK
2	116.6	BRK
3	115.1	BRK
4	110.7	BRK
5	113.7	BRK
AVERAGE	**113.2**	
STD. DEV.	2.88	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-09
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-161

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	89.3	SE1	<10
2	89.5	SE1	<10
3	89.5	SE1	<10
4	88.6	SE1	<10
5	87.1	SE1	<10
AVERAGE	**88.8**		
STD. DEV.	1.02		
INSIDE TRACK (WELD "B")			
1	80.4	SE1	<10
2	89.5	SE1	<10
3	85.0	SE1	<10
4	86.7	SE1	<10
5	85.0	SE1	<10
AVERAGE	**85.3**		
STD. DEV.	3.31		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	98.5	BRK
2	95.2	BRK
3	96.0	BRK
4	94.9	BRK
5	93.5	BRK
AVERAGE	**95.6**	
STD. DEV.	1.85	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-10
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-162

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	79.9	SE1	<10
2	78.9	SE1	<10
3	79.9	SE1	<10
4	72.5	SE1	<10
5	74.6	SE1	<10
AVERAGE	**77.2**		
STD. DEV.	3.40		
INSIDE TRACK (WELD "B")			
1	84.1	SE1	<10
2	76.5	SE1	<10
3	77.8	SE1	<10
4	81.1	SE1	<10
5	79.8	SE1	<10
AVERAGE	**79.9**		
STD. DEV.	2.96		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	87.8	BRK
2	88.7	BRK
3	89.3	BRK
4	89.6	BRK
5	88.7	BRK
AVERAGE	**88.8**	
STD. DEV.	0.69	

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PEEL AND SHEAR TEST RESULTS
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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-11
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-163

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	85.1	SE1	<10
2	84.5	SE1	<10
3	77.8	SE1	<10
4	81.1	SE1	<10
5	82.9	SE1	<10
AVERAGE	**82.3**		
STD. DEV.	2.95		
INSIDE TRACK (WELD "B")			
1	87.9	SE1	<10
2	85.0	SE1	<10
3	82.4	SE1	<10
4	85.1	SE1	<10
5	89.6	SE1	<10
AVERAGE	**86.0**		
STD. DEV.	2.80		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.8	BRK
2	94.2	BRK
3	97.4	BRK
4	100.5	BRK
5	96.2	BRK
AVERAGE	**97.6**	
STD. DEV.	2.59	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-12
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-164

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	93.4	SE1	<10
2	91.8	SE1	<10
3	83.5	SE1	<10
4	84.0	SE1	<10
5	93.2	SE1	<10
AVERAGE	**89.2**		
STD. DEV.	5.00		
INSIDE TRACK (WELD "B")			
1	92.5	SE1	<10
2	88.5	SE1	<10
3	88.2	SE1	<10
4	90.9	SE1	<10
5	95.0	SE1	<10
AVERAGE	**91.0**		
STD. DEV.	2.84		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.1	BRK
2	109.6	BRK
3	114.0	BRK
4	110.0	BRK
5	113.1	BRK
AVERAGE	**110.8**	
STD. DEV.	2.80	

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\\Server\c\2009 PROJECTS\2009-617 HALLATON\[2009-617-03-12 PEEL AND SHEAR 2009-617-03-12

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-13
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-165

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	82.0	SE1	<10
2	84.5	SE1	<10
3	80.7	SE1	<10
4	81.1	SE1	<10
5	79.0	SE1	<10
AVERAGE	**81.5**		
STD. DEV.	2.02		
INSIDE TRACK (WELD "B")			
1	77.9	SE1	<10
2	82.2	SE1	<10
3	84.3	SE1	<10
4	79.5	SE1	<10
5	81.9	SE1	<10
AVERAGE	**81.2**		
STD. DEV.	2.49		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.8	BRK
2	116.2	BRK
3	116.0	BRK
4	110.2	BRK
5	112.5	BRK
AVERAGE	**112.5**	
STD. DEV.	3.65	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-14
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-166

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	100.3	SE1	<10
2	102.1	SE1	<10
3	103.2	SE1	<10
4	98.9	SE1	<10
5	103.2	SE1	<10
AVERAGE	**101.5**		
STD. DEV.	1.89		
INSIDE TRACK (WELD "B")			
1	100.1	SE1	<10
2	102.3	SE1	<10
3	100.4	SE1	<10
4	100.9	SE1	<10
5	99.0	SE1	<10
AVERAGE	**100.5**		
STD. DEV.	1.21		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	111.1	BRK
2	114.3	BRK
3	113.3	BRK
4	114.2	BRK
5	111.2	BRK
AVERAGE	**112.8**	
STD. DEV.	1.57	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-15
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-167

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	99.0	SE1	<10
2	101.2	SE1	<10
3	100.4	SE1	<10
4	88.0	SE1	<10
5	91.0	SE1	<10
AVERAGE	**95.9**		
STD. DEV.	6.01		
INSIDE TRACK (WELD "B")			
1	82.1	SE1	<10
2	75.2	SE1	<10
3	81.3	SE1	<10
4	83.6	SE1	<10
5	81.9	SE1	<10
AVERAGE	**80.8**		
STD. DEV.	3.25		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	114.7	BRK
2	119.4	BRK
3	114.0	BRK
4	115.9	BRK
5	112.9	BRK
AVERAGE	**115.4**	
STD. DEV.	2.50	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

Geotechnics
INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-16
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-168

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	106.0	SE1	<10
2	98.9	SE1	<10
3	100.6	SE1	<10
4	104.0	SE1	<10
5	105.4	SE1	<10
AVERAGE	**103.0**		
STD. DEV.	3.10		
INSIDE TRACK (WELD "B")			
1	96.8	SE1	<10
2	99.3	SE1	<10
3	94.2	SE1	<10
4	96.3	SE1	<10
5	95.2	SE1	<10
AVERAGE	**96.4**		
STD. DEV.	1.93		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	119.5	BRK
2	118.5	BRK
3	118.0	BRK
4	120.1	BRK
5	125.6	BRK
AVERAGE	**120.3**	
STD. DEV.	3.05	

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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-17
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-169

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	103.7	SE1	<10
2	106.4	SE1	<10
3	84.5	SE1	<10
4	92.8	SE1	<10
5	107.9	SE1	<10
AVERAGE	**99.1**		
STD. DEV.	10.06		
INSIDE TRACK (WELD "B")			
1	102.8	SE1	<10
2	89.6	SE1	<10
3	88.0	SE1	<10
4	87.9	SE1	<10
5	86.7	SE1	<10
AVERAGE	**91.0**		
STD. DEV.	6.68		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	118.4	BRK
2	119.4	BRK
3	120.3	BRK
4	118.3	BRK
5	115.3	BRK
AVERAGE	**118.3**	
STD. DEV.	1.88	

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PEEL AND SHEAR TEST RESULTS
DESTRUCTIVE SEAM TESTING
ASTM D 6392 & 4437 w/NSF 54

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-03
LAB ID NO.: 2009-617-03-18
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-170

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	97.8	SE1	<10
2	97.7	SE1	<10
3	91.6	SE1	<10
4	92.9	SE1	<10
5	92.1	SE1	<10
AVERAGE	**94.4**		
STD. DEV.	3.08		
INSIDE TRACK (WELD "B")			
1	100.3	SE1	<10
2	99.6	SE1	<10
3	104.3	SE1	<10
4	102.6	SE1	<10
5	100.2	SE1	<10
AVERAGE	**101.4**		
STD. DEV.	1.98		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	105.4	BRK
2	104.1	BRK
3	98.6	BRK
4	103.1	BRK
5	101.9	BRK
AVERAGE	**102.6**	
STD. DEV.	2.59	

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PEEL AND SHEAR TEST RESULTS
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ASTM D 6392 & 4437 w/NSF 54

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-04
LAB ID NO.: 2009-617-04-01
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-171

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	93.1	SE1	<10
2	93.2	SE1	<10
3	94.0	SE1	<10
4	92.7	SE1	<10
5	93.8	SE1	<10
AVERAGE	**93.4**		
STD. DEV.	0.53		
INSIDE TRACK (WELD "B")			
1	97.1	SE1	<10
2	95.2	SE1	<10
3	98.0	SE1	<10
4	96.1	SE1	<10
5	95.6	SE1	<10
AVERAGE	**96.4**		
STD. DEV.	1.14		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	107.7	BRK
2	109.0	BRK
3	108.3	BRK
4	111.1	BRK
5	112.1	BRK
AVERAGE	**109.6**	
STD. DEV.	1.88	

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CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-04
LAB ID NO.: 2009-617-04-02
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-172

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	92.0	SE1	<10
2	94.6	SE1	<10
3	91.5	SE1	<10
4	92.2	SE1	<10
5	93.7	SE1	<10
AVERAGE	**92.8**		
STD. DEV.	1.30		
INSIDE TRACK (WELD "B")			
1	91.2	SE1	<10
2	90.0	SE1	<10
3	89.4	SE1	<10
4	89.1	SE1	<10
5	91.5	SE1	<10
AVERAGE	**90.2**		
STD. DEV.	1.07		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	99.5	BRK
2	100.7	BRK
3	96.9	BRK
4	98.3	BRK
5	96.5	BRK
AVERAGE	**98.4**	
STD. DEV.	1.76	

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INTEGRITY IN TESTING

CLIENT: HALLATON
CLIENT PROJECT: N.WAKE MSW LF CLOSURE

CLIENT PROJ. NO.: NA
PROJECT NO.: 2009-617-04
LAB ID NO.: 2009-617-04-03
MATERIAL: 40 MIL LLDPE
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DT-173

PEEL ADHESION

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
OUTSIDE TRACK (WELD "A")			
1	93.0	SE1	<10
2	91.8	SE1	<10
3	90.3	SE1	<10
4	91.4	SE1	<10
5	94.1	SE1	<10
AVERAGE	**92.1**		
STD. DEV.	1.47		
INSIDE TRACK (WELD "B")			
1	89.0	SE1	<10
2	91.7	SE1	<10
3	92.3	SE1	<10
4	91.2	SE1	<10
5	89.4	SE1	<10
AVERAGE	**90.7**		
STD. DEV.	1.45		

BONDED SEAM (SHEAR) STRENGTH

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	102.2	BRK
2	99.4	BRK
3	98.8	BRK
4	94.5	BRK
5	100.5	BRK
AVERAGE	**99.1**	
STD. DEV.	2.87	

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